The facets of the Birkhoff polytope of $W(H_4)$

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The group $W(\mathsf{H}_4)$ has 14400 elements. It is generated by 5 elements.

1. Generator 1 is:

$$\frac{1}{4}\begin{pmatrix} 2 & 1 & 0 & 1 \\ 1 & 1 & 0 & 2 \\ 0 & 0 & 4 & 0 \\ 1 & 2 & 0 & 1 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & 1 & 0 & -1 \\ 1 & -1 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ -1 & 0 & 0 & 1 \end{pmatrix}$$

2. Generator 2 is:

$$\frac{1}{4}\begin{pmatrix} 2 & 1 & 0 & 1 \\ 1 & -2 & -1 & 0 \\ 0 & -1 & 2 & 1 \\ 1 & 0 & 1 & -2 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & 1 & 0 & -1 \\ 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \\ -1 & 0 & 1 & 0 \end{pmatrix}$$

3. Generator 3 is:

$$\frac{1}{2}\begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & 1 & -1 & -1 \\ 1 & -1 & 1 & -1 \\ -1 & 1 & 1 & -1 \end{pmatrix}$$

4. Generator 4 is:

$$\frac{1}{4}\begin{pmatrix} 1 & 0 & 2 & -1 \\ 2 & 2 & -2 & -2 \\ 1 & 1 & 2 & 0 \\ 0 & 1 & 2 & -1 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ 0 & -1 & 0 & -1 \end{pmatrix}$$

5. Generator 5 is:

$$\frac{1}{2}\begin{pmatrix} 1 & 1 & -1 & 1 \\ 1 & 1 & 1 & -1 \\ 1 & -1 & -1 & -1 \\ -1 & 1 & -1 & -1 \end{pmatrix}$$

We consider the facets of the convex hull of the group. There are 188455824000 facets. There are 1063 orbits of facets

1. Orbit 1 has incidence 480 stabilizer of size 2880. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{2}\begin{pmatrix} 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & -1 \\ 0 & 0 & 0 & -1 \\ 0 & 0 & 0 & -7 \end{pmatrix} + \frac{\sqrt{5}}{2}\begin{pmatrix} 0 & 0 & 0 & -1 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 3 \end{pmatrix}$$

and $rank(A) = 1$.

2. Orbit 2 has incidence 120 stabilizer of size 120. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 3 & -7 & 0 & -2 \\ 4 & -11 & 0 & -1 \\ -1 & 4 & 0 & -5 \\ 0 & 0 & 0 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -1 & 3 & 0 & 0 \\ -2 & 5 & 0 & 1 \\ 1 & -2 & 0 & 3 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$

and $rank(A) = 2$.

3. Orbit 3 has incidence 100 stabilizer of size 40. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & 4 & 3 & 1 \\ 0 & 3 & 1 & 2 \\ -8 & 0 & -14 & 6 \\ 0 & 7 & 4 & 3 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & -2 & -1 & -1 \\ 0 & -1 & -1 & 0 \\ 4 & 0 & 6 & -2 \\ 0 & -3 & -2 & -1 \end{pmatrix}$$

and $rank(A) = 2$.

4. Orbit 4 has incidence 48 stabilizer of size 48. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & 0 & 4 & 1 \\ 7 & 0 & 3 & 2 \\ 14 & -14 & 14 & -2 \\ -18 & 0 & -7 & -3 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & 0 & -2 & -1 \\ -3 & 0 & -1 & 0 \\ -6 & 6 & -6 & 2 \\ 8 & 0 & 3 & 1 \end{pmatrix}$$

and $rank(A) = 2$.

5. Orbit 5 has incidence 36 stabilizer of size 8. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & 36 & -7 & -9 \\ -11 & 11 & -11 & -5 \\ 14 & -7 & 18 & 9 \\ -7 & 18 & 0 & -3 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & -16 & 3 & 3 \\ 5 & -5 & 5 & 3 \\ -6 & 3 & -8 & -3 \\ 3 & -8 & 0 & 1 \end{pmatrix}$$

and $rank(A) = 2$.

6. Orbit 6 has incidence 38 stabilizer of size 8. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -7 & -4 & 0 & 5 \\ 0 & -11 & 7 & -4 \\ 3 & 8 & -4 & -9 \\ 4 & 7 & -3 & 8 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & 2 & 0 & -3 \\ 0 & 5 & -3 & 2 \\ -1 & -4 & 2 & 5 \\ -2 & -3 & 1 & -4 \end{pmatrix}$$

and $rank(A) = 3$.

7. Orbit 7 has incidence 36 stabilizer of size 16. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & -1 & -7 & 1 \\ 0 & -4 & -3 & -1 \\ 3 & 0 & 4 & -1 \\ -4 & 11 & 0 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 1 & 3 & -1 \\ 0 & 2 & 1 & 1 \\ -1 & 0 & -2 & 1 \\ 2 & -5 & 0 & -3 \end{pmatrix}$$

and $rank(A) = 3$.

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8. Orbit 8 has incidence 36 stabilizer of size 8. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 14 & -4 & -11 & 1 \\ -3 & 0 & 4 & -1 \\ -1 & -7 & -7 & -1 \\ 10 & 11 & 0 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -6 & 2 & 5 & -1 \\ 1 & 0 & -2 & 1 \\ 1 & 3 & 3 & 1 \\ -4 & -5 & 0 & -3 \end{pmatrix}$$

and $rank(A) = 3$.

9. Orbit 9 has incidence 36 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & -15 & 0 & -38 \\ 15 & -7 & 7 & 13 \\ 22 & -7 & 18 & -5 \\ -4 & 7 & 11 & 30 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & 7 & 0 & 16 \\ -7 & 3 & -3 & -5 \\ -10 & 3 & -8 & 3 \\ 2 & -3 & -5 & -14 \end{pmatrix}$$

and $rank(A) = 3$.

10. Orbit 10 has incidence 32 stabilizer of size 16. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & -1 & -4 & -1 \\ 4 & 0 & 1 & 1 \\ -5 & -3 & -3 & 1 \\ -1 & 4 & 0 & 3 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & 1 & 2 & -1 \\ -2 & 0 & -1 & 1 \\ 3 & 1 & 1 & 1 \\ 1 & -2 & 0 & -1 \end{pmatrix}$$

and $rank(A) = 3$.

11. Orbit 11 has incidence 32 stabilizer of size 8. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 7 & 0 & -2 \\ 4 & 0 & 7 & -5 \\ -7 & 11 & 18 & -16 \\ 14 & -4 & 11 & 1 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -3 & 0 & 0 \\ -2 & 0 & -3 & 3 \\ 3 & -5 & -8 & 8 \\ -6 & 2 & -5 & -1 \end{pmatrix}$$

and $rank(A) = 3$.

12. Orbit 12 has incidence 32 stabilizer of size 8. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 4 & 11 & 0 & 1 \\ 0 & 7 & 4 & -5 \\ 7 & 0 & -11 & 2 \\ 3 & -4 & -7 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -2 & -5 & 0 & -1 \\ 0 & -3 & -2 & 3 \\ -3 & 0 & 5 & 0 \\ -1 & 2 & 3 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

13. Orbit 13 has incidence 32 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & 0 & -3 & -10 \\ 0 & 14 & 8 & 6 \\ -11 & 0 & 4 & -1 \\ -4 & 0 & 1 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 0 & 1 & 4 \\ 0 & -6 & -4 & -2 \\ 5 & 0 & -2 & 1 \\ 2 & 0 & -1 & 5 \end{pmatrix}$$

and $rank(A) = 3$.

14. Orbit 14 has incidence 32 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & -4 & 0 & -31 \\ 33 & -18 & 7 & 6 \\ 4 & 4 & 18 & 2 \\ 14 & -4 & 11 & 23 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 2 & 0 & 13 \\ -15 & 8 & -3 & -2 \\ -2 & -2 & -8 & 0 \\ -6 & 2 & -5 & -11 \end{pmatrix}$$

and $rank(A) = 3$.

15. Orbit 15 has incidence 30 stabilizer of size 12. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 4 & -4 & -4 & -2 \\ -1 & -4 & 0 & -5 \\ 1 & 4 & 1 & -4 \\ 6 & 4 & -3 & -1 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -2 & 2 & 2 & 0 \\ 1 & 2 & 0 & 3 \\ 1 & -2 & -1 & 4 \\ -2 & -2 & 1 & 1 \end{pmatrix}$$

and $rank(A) = 3$.

16. Orbit 16 has incidence 30 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -2 & 2 & 2 & 2 \\ 0 & -2 & 1 & -3 \\ 1 & 4 & -4 & 3 \\ -1 & -2 & 3 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & -4 & -4 & -8 \\ 0 & 4 & -3 & 11 \\ -1 & -10 & 8 & -1 \\ 3 & 4 & -7 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

17. Orbit 17 has incidence 30 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 4 & -11 & 0 & 3 \\ 3 & -25 & -11 & 1 \\ 6 & -3 & 7 & 0 \\ 1 & 3 & 4 & 2 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -2 & 5 & 0 & -3 \\ -1 & 11 & 5 & 1 \\ -2 & 1 & -3 & 2 \\ -1 & -1 & -2 & -2 \end{pmatrix}$$

and $rank(A) = 3$.

18. Orbit 18 has incidence 30 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -4 & 7 & -11 & -6 \\ 8 & 7 & 4 & -5 \\ -15 & -7 & -7 & -1 \\ 3 & -7 & 0 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 2 & -3 & 5 & 2 \\ -4 & -3 & -2 & 3 \\ 7 & 3 & 3 & 1 \\ -1 & 3 & 0 & -8 \end{pmatrix}$$

and $rank(A) = 3$.

19. Orbit 19 has incidence 30 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & 4 & -7 & -6 \\ -4 & -11 & 22 & -1 \\ -1 & 0 & -25 & 2 \\ 14 & -7 & 4 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & -2 & 3 & 2 \\ 2 & 5 & -10 & 1 \\ 1 & 0 & 11 & 0 \\ -6 & 3 & -2 & 5 \end{pmatrix}$$

and $rank(A) = 3$.

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20. Orbit 20 has incidence 30 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 7 & 0 & -2 \\ 0 & 18 & 11 & -1 \\ -4 & -14 & -7 & 9 \\ 7 & 11 & 4 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -3 & 0 & 0 \\ 0 & -8 & -5 & 1 \\ 2 & 6 & 3 & -3 \\ -3 & -5 & -2 & -10 \end{pmatrix}$$

and $rank(A) = 3$.

21. Orbit 21 has incidence 30 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -7 & 26 & 19 \\ -7 & 0 & -11 & 10 \\ 10 & -3 & 8 & -1 \\ 3 & 4 & 15 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 3 & -12 & -9 \\ 3 & 0 & 5 & -4 \\ -4 & 1 & -4 & 1 \\ -1 & -2 & -7 & 10 \end{pmatrix}$$

and $rank(A) = 3$.

22. Orbit 22 has incidence 28 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & -11 & 11 & -17 \\ -4 & -11 & 0 & -1 \\ -1 & 11 & -4 & -2 \\ -14 & -11 & -7 & -10 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 5 & -5 & 7 \\ 2 & 5 & 0 & 1 \\ 1 & -5 & 2 & 2 \\ 6 & 5 & 3 & 4 \end{pmatrix}$$

and $rank(A) = 3$.

23. Orbit 23 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & 0 & -4 & -13 \\ -15 & 3 & 4 & -2 \\ -2 & 7 & -2 & 21 \\ 10 & 4 & -10 & 10 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 0 & 2 & 5 \\ 7 & -1 & -2 & 2 \\ 2 & -3 & 0 & -7 \\ -4 & -2 & 4 & -4 \end{pmatrix}$$

and $rank(A) = 3$.

24. Orbit 24 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 1 & -26 & 9 & 2 \\ -18 & -35 & -9 & -28 \\ 6 & 0 & 7 & 29 \\ -25 & -9 & -25 & -59 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -3 & 12 & -5 & -6 \\ 10 & 17 & 5 & 18 \\ 4 & 0 & 1 & 1 \\ 9 & 5 & 9 & 23 \end{pmatrix}$$

and $rank(A) = 3$.

25. Orbit 25 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 1 & -26 & 9 & 2 \\ -1 & -9 & 0 & -28 \\ -3 & -17 & -1 & 29 \\ 1 & 34 & -8 & -59 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -3 & 12 & -5 & -6 \\ 3 & 5 & 0 & 18 \\ 9 & 7 & 3 & 1 \\ -3 & -14 & 2 & 23 \end{pmatrix}$$

and $rank(A) = 3$.

26. Orbit 26 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 0 & 0 & -6 \\ -11 & 29 & 0 & -12 \\ -15 & 4 & 22 & -5 \\ -4 & -3 & 8 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 0 & 0 & 2 \\ 5 & -13 & 0 & 6 \\ 7 & -2 & -10 & 3 \\ 2 & 1 & -4 & 3 \end{pmatrix}$$

and $rank(A) = 3$.

27. Orbit 27 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 0 & 0 & -6 \\ -11 & 29 & 0 & -12 \\ -15 & 4 & -22 & -5 \\ 4 & 3 & 8 & -21 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 0 & 0 & 2 \\ 5 & -13 & 0 & 6 \\ 7 & -2 & 10 & 3 \\ -2 & -1 & -4 & 9 \end{pmatrix}$$

and $rank(A) = 3$.

28. Orbit 28 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 25 & 3 & -11 & 5 \\ -25 & 0 & 4 & -1 \\ 3 & 4 & -7 & 6 \\ 3 & 29 & 0 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -11 & -1 & 5 & -3 \\ 11 & 0 & -2 & 1 \\ -1 & -2 & 3 & -2 \\ -1 & -13 & 0 & -8 \end{pmatrix}$$

and $rank(A) = 3$.

29. Orbit 29 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -25 & -11 & -11 & 5 \\ 36 & 22 & 0 & 6 \\ -26 & 4 & -54 & 16 \\ 7 & 7 & -7 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 11 & 5 & 5 & -3 \\ -16 & -10 & 0 & -2 \\ 12 & -2 & 24 & -6 \\ -3 & -3 & 3 & 13 \end{pmatrix}$$

and $rank(A) = 3$.

30. Orbit 30 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{2}\begin{pmatrix} -11 & 18 & -11 & 8 \\ -11 & 18 & 0 & -8 \\ 7 & 0 & 0 & 10 \\ 0 & 0 & 0 & 0 \end{pmatrix} + \frac{\sqrt{5}}{2}\begin{pmatrix} 5 & -8 & 5 & -4 \\ 5 & -8 & 0 & 4 \\ -3 & 0 & 0 & -4 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

31. Orbit 31 has incidence 28 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & 0 & -7 & 5 \\ 0 & 0 & -14 & -16 \\ 7 & 0 & 11 & -12 \\ -11 & 0 & -10 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & 0 & 3 & -3 \\ 0 & 0 & 6 & 8 \\ -3 & 0 & -5 & 6 \\ 5 & 0 & 4 & 3 \end{pmatrix}$$

and $rank(A) = 3$.

32. Orbit 32 has incidence 26 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & 0 & 3 & -8 \\ -8 & -4 & -3 & -3 \\ -5 & -11 & -3 & 7 \\ -4 & 7 & 11 & -8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 0 & -1 & 2 \\ 4 & 2 & 1 & 3 \\ 3 & 5 & 1 & -1 \\ 2 & -3 & -5 & 4 \end{pmatrix}$$

and $rank(A) = 3$.

33. Orbit 33 has incidence 26 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 11 & -18 & 30 \\ 18 & -4 & -4 & 2 \\ 14 & 7 & -4 & -49 \\ 11 & 0 & 4 & -43 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -5 & 8 & -14 \\ -8 & 2 & 2 & 0 \\ -6 & -3 & 2 & 23 \\ -5 & 0 & -2 & 19 \end{pmatrix}$$

and $rank(A) = 3$.

34. Orbit 34 has incidence 26 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & 3 & -2 & 2 \\ -3 & 4 & 1 & -2 \\ -4 & 1 & -3 & -2 \\ 0 & 0 & 2 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & -1 & 0 & -2 \\ 1 & -2 & -1 & 2 \\ 2 & -1 & 1 & 2 \\ 0 & 0 & -2 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

35. Orbit 35 has incidence 26 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 5 & -4 & 3 & 4 \\ -1 & -3 & 1 & -1 \\ 2 & 1 & -3 & -2 \\ 0 & -6 & -3 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -11 & 10 & -7 & -12 \\ 1 & 7 & -1 & 5 \\ -2 & -3 & 7 & 8 \\ -2 & 14 & 7 & 19 \end{pmatrix}$$

and $rank(A) = 3$.

36. Orbit 36 has incidence 26 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 4 & 7 & 3 & 2 \\ 0 & 7 & -4 & -5 \\ -1 & 1 & 7 & -3 \\ 3 & 1 & 2 & 4 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -2 & -3 & -1 & -2 \\ 0 & -3 & 2 & 3 \\ 1 & -1 & -3 & 3 \\ -1 & -1 & -2 & -2 \end{pmatrix}$$

and $rank(A) = 3$.

37. Orbit 37 has incidence 26 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -11 & -7 & 44 & -32 \\ 29 & 0 & -11 & 10 \\ 28 & -3 & 15 & 24 \\ -40 & 4 & -10 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 5 & 3 & -20 & 14 \\ -13 & 0 & 5 & -4 \\ -12 & 1 & -7 & -10 \\ 18 & -2 & 4 & -2 \end{pmatrix}$$

and $rank(A) = 3$.

38. Orbit 38 has incidence 26 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44}\begin{pmatrix} 19 & 19 & 7 & -35 \\ 32 & -19 & 0 & 15 \\ 13 & 19 & -6 & -10 \\ 0 & 19 & -1 & -20 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} -9 & -9 & -1 & 5 \\ -14 & 9 & 0 & 1 \\ -5 & -9 & 4 & 14 \\ 0 & -9 & -3 & 6 \end{pmatrix}$$

and $rank(A) = 3$.

39. Orbit 39 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & -18 & -11 & 1 \\ 7 & -18 & -14 & -5 \\ 10 & 4 & 26 & -20 \\ -11 & -18 & -7 & 14 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & 8 & 5 & -1 \\ -3 & 8 & 6 & 3 \\ -4 & -2 & -12 & 10 \\ 5 & 8 & 3 & -6 \end{pmatrix}$$

and $rank(A) = 3$.

40. Orbit 40 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 3 & -2 & 0 & 1 \\ 2 & -8 & -8 & -2 \\ -2 & -2 & 5 & 1 \\ 1 & 2 & 3 & 2 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -7 & 4 & 0 & -7 \\ -4 & 18 & 18 & 8 \\ 6 & 4 & -11 & 3 \\ -3 & -4 & -7 & -6 \end{pmatrix}
$$

and $rank(A) = 3$.

41. Orbit 41 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{12}\begin{pmatrix} 4 & 4 & -4 & 0 \\ 0 & 10 & -3 & -5 \\ -1 & -4 & -6 & 5 \\ 3 & 4 & 1 & 0 \end{pmatrix} + \frac{\sqrt{5}}{12}\begin{pmatrix} -2 & -2 & 2 & -2 \\ 0 & -4 & 1 & 5 \\ 1 & 2 & 2 & 1 \\ -1 & -2 & -1 & 0 \end{pmatrix}
$$

and $rank(A) = 3$.

42. Orbit 42 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 18 & -29 & -11 & -6 \\ 25 & -58 & -18 & -23 \\ 28 & 11 & 29 & -20 \\ 7 & 18 & 0 & 25 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -8 & 13 & 5 & 2 \\ -11 & 26 & 8 & 11 \\ -12 & -5 & -13 & 10 \\ -3 & -8 & 0 & -11 \end{pmatrix}
$$

and $rank(A) = 3$.

43. Orbit 43 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} -7 & 7 & 7 & 1 \\ 0 & 0 & 0 & 6 \\ 3 & 11 & -11 & 9 \\ -4 & 4 & 4 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & -3 & -3 & -1 \\ 0 & 0 & 0 & -2 \\ -1 & -5 & 5 & -3 \\ 2 & -2 & -2 & 8 \end{pmatrix}
$$

and $rank(A) = 3$.

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44. Orbit 44 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 22 & -7 & 19 \\ 11 & -11 & -11 & -19 \\ 6 & 15 & -18 & -5 \\ -15 & 4 & 22 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 2 & -10 & 3 & -9 \\ -5 & 5 & 5 & 9 \\ -2 & -7 & 8 & 3 \\ 7 & -2 & -10 & -21 \end{pmatrix}$$

and $rank(A) = 3$.

45. Orbit 45 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 3 & -8 & 1 \\ 0 & 3 & 7 & -6 \\ -1 & 3 & -4 & 4 \\ 3 & 5 & 5 & -11 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -1 & 4 & -1 \\ 0 & -1 & -3 & 4 \\ 1 & -1 & 2 & 0 \\ -1 & -3 & -3 & 5 \end{pmatrix}$$

and $rank(A) = 3$.

46. Orbit 46 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 7 & 15 & 1 \\ 7 & -18 & -14 & 3 \\ -1 & 0 & -3 & 2 \\ -15 & -11 & 4 & 14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -3 & -7 & -1 \\ -3 & 8 & 6 & -1 \\ 1 & 0 & 1 & 0 \\ 7 & 5 & -2 & -6 \end{pmatrix}$$

and $rank(A) = 3$.

47. Orbit 47 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 36 & -4 & 11 & 1 \\ -4 & -4 & 4 & 2 \\ 3 & -4 & -7 & -16 \\ 7 & 18 & 0 & 25 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -16 & 2 & -5 & -1 \\ 2 & 2 & -2 & 0 \\ -1 & 2 & 3 & 8 \\ -3 & -8 & 0 & -11 \end{pmatrix}$$

and $rank(A) = 3$.

48. Orbit 48 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 4 & 4 & 12 \\ -4 & -11 & -14 & -1 \\ 10 & 0 & -7 & -5 \\ -4 & -7 & -3 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -2 & -2 & -6 \\ 2 & 5 & 6 & 1 \\ -4 & 0 & 3 & 3 \\ 2 & 3 & 1 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

49. Orbit 49 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -7 & -4 & -3 \\ -7 & 4 & 0 & -5 \\ -4 & -14 & 7 & -5 \\ -11 & 3 & -3 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 3 & 2 & 1 \\ 3 & -2 & 0 & 3 \\ 2 & 6 & -3 & 3 \\ 5 & -1 & 1 & 5 \end{pmatrix}$$

and $rank(A) = 3$.

50. Orbit 50 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -14 & -15 & -3 \\ -7 & 0 & 11 & -12 \\ 3 & -14 & -4 & -1 \\ 0 & -8 & 8 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 6 & 7 & 1 \\ 3 & 0 & -5 & 6 \\ -1 & 6 & 2 & 1 \\ 0 & 4 & -4 & 10 \end{pmatrix}$$

and $rank(A) = 3$.

51. Orbit 51 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 3 & 0 & 1 \\ 2 & -6 & 2 & -4 \\ 1 & -2 & -4 & 1 \\ 3 & -1 & 4 & -2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & -5 & 0 & -5 \\ -6 & 14 & -6 & 12 \\ -1 & 4 & 8 & 1 \\ -5 & 1 & -8 & 4 \end{pmatrix}$$

and $rank(A) = 3$.

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52. Orbit 52 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & -7 & -21 & 15 \\ -18 & 0 & 7 & -19 \\ -8 & -3 & -21 & -12 \\ 25 & 4 & 1 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 3 & 9 & -7 \\ 8 & 0 & -3 & 9 \\ 4 & 1 & 9 & 6 \\ -11 & -2 & -1 & -10 \end{pmatrix}$$

and $rank(A) = 3$.

53. Orbit 53 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & -7 & 4 & -3 \\ 11 & -7 & 0 & -12 \\ 21 & 15 & -7 & 13 \\ -18 & 15 & -3 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & 3 & -2 & 1 \\ -5 & 3 & 0 & 6 \\ -9 & -7 & 3 & -5 \\ 8 & -7 & 1 & -10 \end{pmatrix}$$

and $rank(A) = 3$.

54. Orbit 54 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -29 & 4 & -14 & -3 \\ 11 & 0 & 18 & -1 \\ 10 & 15 & -25 & 6 \\ 0 & -3 & -21 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 13 & -2 & 6 & 1 \\ -5 & 0 & -8 & 1 \\ -4 & -7 & 11 & -2 \\ 0 & 1 & 9 & -2 \end{pmatrix}$$

and $rank(A) = 3$.

55. Orbit 55 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 29 & -8 & 11 & -10 \\ -7 & -4 & 8 & -5 \\ 7 & -11 & -32 & 6 \\ 7 & -7 & 7 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -13 & 4 & -5 & 4 \\ 3 & 2 & -4 & 3 \\ -3 & 5 & 14 & -2 \\ -3 & 3 & -3 & 3 \end{pmatrix}$$

and $rank(A) = 3$.

56. Orbit 56 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -2 & -2 & -3 & -1 \\ -2 & 0 & 3 & -3 \\ 0 & 0 & 1 & 5 \\ 4 & 2 & -1 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & 6 & 7 & -1 \\ 4 & 0 & -7 & 9 \\ 2 & 0 & -1 & -7 \\ -10 & -6 & 1 & 11 \end{pmatrix}$$

and $rank(A) = 3$.

57. Orbit 57 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 29 & 14 & 11 & 12 \\ 22 & 18 & -11 & -1 \\ 3 & -11 & 33 & -5 \\ -4 & -15 & 33 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -13 & -6 & -5 & -6 \\ -10 & -8 & 5 & 1 \\ -1 & 5 & -15 & 3 \\ 2 & 7 & -15 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

58. Orbit 58 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -7 & 32 & 22 & -17 \\ -7 & 14 & 11 & 24 \\ -29 & 29 & 29 & 13 \\ -7 & 3 & 4 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & -14 & -10 & 7 \\ 3 & -6 & -5 & -10 \\ 13 & -13 & -13 & -5 \\ 3 & -1 & -2 & 6 \end{pmatrix}$$

and $rank(A) = 3$.

59. Orbit 59 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & 11 & -15 & -2 \\ 0 & -11 & 29 & -12 \\ 36 & 11 & 7 & 24 \\ 0 & 11 & -21 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & -5 & 7 & 0 \\ 0 & 5 & -13 & 6 \\ -16 & -5 & -3 & -10 \\ 0 & -5 & 9 & -2 \end{pmatrix}$$

and $rank(A) = 3$.

60. Orbit 60 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -15 & 7 & -7 & 1 \\ 4 & 18 & 4 & -12 \\ -8 & 0 & 0 & 6 \\ 3 & -11 & 11 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 7 & -3 & 3 & -1 \\ -2 & -8 & -2 & 6 \\ 4 & 0 & 0 & -2 \\ -1 & 5 & -5 & -5 \end{pmatrix}$$

and $rank(A) = 3$.

61. Orbit 61 has incidence 26 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & 7 & 29 & 1 \\ -7 & -7 & 15 & -1 \\ 7 & 15 & 7 & -1 \\ -15 & -7 & 1 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & -3 & -13 & -1 \\ 3 & 3 & -7 & 1 \\ -3 & -7 & -3 & 1 \\ 7 & 3 & -1 & 3 \end{pmatrix}$$

and $rank(A) = 3$.

62. Orbit 62 has incidence 24 stabilizer of size 16. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & 0 & -8 & 8 \\ 4 & -4 & 4 & 10 \\ 3 & -3 & -11 & 3 \\ 7 & -7 & 1 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & 0 & 4 & -4 \\ -2 & 2 & -2 & -4 \\ -1 & 1 & 5 & -1 \\ -3 & 3 & -1 & 3 \end{pmatrix}$$

and $rank(A) = 3$.

63. Orbit 63 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44}\begin{pmatrix} 6 & -13 & -19 & -2 \\ -19 & 7 & -7 & -29 \\ -12 & -6 & -7 & 29 \\ 13 & 0 & -7 & -6 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} -4 & 5 & 9 & -6 \\ 9 & -1 & 1 & 23 \\ 8 & 4 & 1 & -1 \\ -5 & 0 & 1 & 4 \end{pmatrix}$$

and $rank(A) = 3$.

64. Orbit 64 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & -25 & -22 & 9 \\ -11 & -40 & -43 & -16 \\ 14 & -29 & 40 & -27 \\ -29 & 0 & 11 & 54 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & 11 & 10 & -5 \\ 5 & 18 & 19 & 8 \\ -6 & 13 & -18 & 13 \\ 13 & 0 & -5 & -24 \end{pmatrix}$$

and $rank(A) = 3$.

65. Orbit 65 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} -9 & 2 & 0 & -15 \\ 48 & 23 & -7 & 4 \\ -28 & -25 & 9 & -22 \\ 7 & 0 & -16 & -55 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} 1 & 4 & 0 & -11 \\ -18 & -11 & 5 & 8 \\ 20 & 7 & -1 & 32 \\ -5 & 0 & 6 & 23 \end{pmatrix}$$

and $rank(A) = 3$.

66. Orbit 66 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 7 & -11 & -6 \\ -11 & 7 & 0 & -12 \\ -8 & 7 & 4 & 9 \\ 7 & -7 & -7 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -3 & 5 & 2 \\ 5 & -3 & 0 & 6 \\ 4 & -3 & -2 & -3 \\ -3 & 3 & 3 & -3 \end{pmatrix}$$

and $rank(A) = 3$.

67. Orbit 67 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 57 & 13 & 64 & 4 \\ -6 & 6 & -32 & 34 \\ 27 & 12 & -7 & -28 \\ -38 & -19 & -13 & -70 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -27 & -5 & -28 & -10 \\ 4 & -4 & 14 & -8 \\ -7 & -8 & 1 & 26 \\ 18 & 9 & 5 & 32 \end{pmatrix}$$

and $rank(A) = 3$.

68. Orbit 68 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -15 & 26 & -8 & 19 \\ -29 & 22 & 11 & 10 \\ 21 & 1 & 7 & -1 \\ 7 & -25 & -4 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 7 & -12 & 4 & -9 \\ 13 & -10 & -5 & -4 \\ -9 & -1 & -3 & 1 \\ -3 & 11 & 2 & 6 \end{pmatrix}$$

and $rank(A) = 3$.

69. Orbit 69 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 7 & 7 & 19 & -9 \\ -26 & 19 & 13 & -4 \\ -18 & 7 & -26 & -23 \\ -13 & 19 & 32 & 0 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -1 & -1 & -9 & -5 \\ 10 & -9 & -5 & 10 \\ 12 & -1 & 10 & 19 \\ 5 & -9 & -14 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

70. Orbit 70 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & -4 & -4 & -1 \\ -2 & 2 & 4 & -2 \\ -2 & 2 & 5 & 3 \\ -1 & 2 & 3 & 6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -1 & 10 & 8 & -1 \\ 4 & -4 & -10 & 8 \\ 6 & -4 & -11 & -3 \\ 3 & -4 & -7 & -14 \end{pmatrix}$$

and $rank(A) = 3$.

71. Orbit 71 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -1 & -1 & 1 & -1 \\ 3 & -3 & -1 & 3 \\ -2 & 0 & 0 & 0 \\ -4 & 2 & -2 & -2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 3 & 3 & -3 & -1 \\ -7 & 7 & 1 & -3 \\ 6 & 0 & 0 & 4 \\ 10 & -4 & 4 & 4 \end{pmatrix}$$

and $rank(A) = 3$.

72. Orbit 72 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & 3 & -11 & 0 \\ -2 & 2 & 2 & 4 \\ 6 & 0 & -7 & -5 \\ 2 & 1 & -8 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -4 & -7 & 25 & -4 \\ 4 & -4 & -4 & -6 \\ -12 & 0 & 15 & 15 \\ -4 & -3 & 16 & 1 \end{pmatrix}$$

and $rank(A) = 3$.

73. Orbit 73 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 0 & 4 & 1 \\ 15 & -7 & 7 & -1 \\ -8 & 4 & -11 & -1 \\ 4 & -3 & -14 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 0 & -2 & -1 \\ -7 & 3 & -3 & 1 \\ 4 & -2 & 5 & 1 \\ -2 & 1 & 6 & 3 \end{pmatrix}$$

and $rank(A) = 3$.

74. Orbit 74 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 7 & 11 & 30 \\ 7 & -26 & 0 & -5 \\ -11 & 22 & 18 & 13 \\ 14 & -11 & -7 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -3 & -5 & -14 \\ -3 & 12 & 0 & 3 \\ 5 & -10 & -8 & -5 \\ -6 & 5 & 3 & -2 \end{pmatrix}$$

and $rank(A) = 3$.

75. Orbit 75 has incidence 24 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 1 & -3 & -9 & -1 \\ 1 & 22 & -11 & -6 \\ 12 & 6 & -9 & 5 \\ 24 & 1 & 13 & 14 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & 1 & 3 & -1 \\ -1 & -10 & 5 & 4 \\ -4 & -4 & 3 & -1 \\ -10 & -1 & -7 & -6 \end{pmatrix}$$

and $rank(A) = 3$.

76. Orbit 76 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & -29 & 7 & -13 \\ 54 & -58 & -7 & -5 \\ -8 & 11 & -7 & -20 \\ -11 & 18 & 29 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & 13 & -3 & 5 \\ -24 & 26 & 3 & 3 \\ 4 & -5 & 3 & 10 \\ 5 & -8 & -13 & 10 \end{pmatrix}$$

and $rank(A) = 3$.

77. Orbit 77 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & 18 & 14 & -1 \\ -8 & 25 & 15 & 8 \\ -27 & 0 & -32 & 25 \\ -4 & 7 & 11 & -8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & -8 & -6 & -1 \\ 4 & -11 & -7 & -2 \\ 13 & 0 & 14 & -9 \\ 2 & -3 & -5 & 4 \end{pmatrix}$$

and $rank(A) = 3$.

78. Orbit 78 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 18 & 7 & -6 \\ 14 & 36 & 22 & 42 \\ 10 & -29 & -25 & -2 \\ 7 & -11 & -18 & -80 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -8 & -3 & 2 \\ -6 & -16 & -10 & -18 \\ -4 & 13 & 11 & 2 \\ -3 & 5 & 8 & 36 \end{pmatrix}$$

and $rank(A) = 3$.

79. Orbit 79 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 18 & 22 & 5 \\ 15 & 22 & -11 & 10 \\ 21 & 29 & -15 & -9 \\ -29 & -11 & 40 & 44 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -8 & -10 & -3 \\ -7 & -10 & 5 & -4 \\ -9 & -13 & 7 & 5 \\ 13 & 5 & -18 & -20 \end{pmatrix}$$

and $rank(A) = 3$.

80. Orbit 80 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & -7 & 11 & -20 \\ -11 & 18 & 65 & 6 \\ 50 & -36 & -58 & -38 \\ -7 & -11 & -18 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & 3 & -5 & 8 \\ 5 & -8 & -29 & -2 \\ -22 & 16 & 26 & 18 \\ 3 & 5 & 8 & 6 \end{pmatrix}$$

and $rank(A) = 3$.

81. Orbit 81 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 18 & 0 & 7 & 5 \\ 25 & -11 & 11 & -5 \\ -8 & 29 & -18 & 9 \\ 7 & 18 & 0 & 25 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -8 & 0 & -3 & -3 \\ -11 & 5 & -5 & 3 \\ 4 & -13 & 8 & -3 \\ -3 & -8 & 0 & -11 \end{pmatrix}$$

and $rank(A) = 3$.

82. Orbit 82 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & -7 & -11 & 16 \\ -11 & -11 & -25 & -5 \\ -8 & -18 & 11 & -9 \\ -29 & 0 & 11 & 54 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & 3 & 5 & -8 \\ 5 & 5 & 11 & 3 \\ 4 & 8 & -5 & 5 \\ 13 & 0 & -5 & -24 \end{pmatrix}$$

and $rank(A) = 3$.

83. Orbit 83 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & -7 & -11 & 8 \\ 3 & 18 & -65 & 6 \\ 42 & -36 & 58 & -38 \\ -15 & 11 & -18 & 14 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & 3 & 5 & -4 \\ -1 & -8 & 29 & -2 \\ -18 & 16 & -26 & 18 \\ 7 & -5 & 8 & -6 \end{pmatrix}$$

and $rank(A) = 3$.

84. Orbit 84 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44}\begin{pmatrix} -13 & 38 & -19 & 18 \\ 14 & 32 & 19 & 15 \\ 9 & -45 & 19 & -3 \\ -82 & -13 & 19 & 52 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} 5 & -18 & 9 & -12 \\ -2 & -14 & -9 & 1 \\ 5 & 19 & -9 & 13 \\ 40 & 5 & -9 & -20 \end{pmatrix}$$

and $rank(A) = 3$.

85. Orbit 85 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 14 & 22 & -36 & -28 \\ -7 & -11 & 18 & -30 \\ -12 & 15 & 11 & 6 \\ 3 & 4 & -7 & 94 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -6 & -10 & 16 & 12 \\ 3 & 5 & -8 & 14 \\ 6 & -7 & -5 & -2 \\ -1 & -2 & 3 & -42 \end{pmatrix}$$

and $rank(A) = 3$.

86. Orbit 86 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 18 & -11 & 0 & -35 \\ 12 & -25 & 0 & -23 \\ 32 & 11 & 36 & -1 \\ -26 & -11 & 0 & 51 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -8 & 5 & 0 & 15 \\ -6 & 11 & 0 & 11 \\ -14 & -5 & -16 & 1 \\ 12 & 5 & 0 & -23 \end{pmatrix}$$

and $rank(A) = 3$.

87. Orbit 87 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 54 & 0 & 7 & -17 \\ -3 & 7 & -14 & 2 \\ 14 & -18 & 33 & -23 \\ -15 & 11 & -18 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -24 & 0 & -3 & 7 \\ 1 & -3 & 6 & 0 \\ -6 & 8 & -15 & 11 \\ 7 & -5 & 8 & -16 \end{pmatrix}$$

and $rank(A) = 3$.

88. Orbit 88 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -19 & 0 & -6 & -3 \\ 32 & -38 & -13 & -29 \\ 39 & 38 & 19 & -16 \\ 0 & 0 & 0 & 0 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 9 & 0 & 4 & -9 \\ -14 & 18 & 5 & 23 \\ -15 & -18 & -9 & 18 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

89. Orbit 89 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 36 & -8 & 22 & -6 \\ 7 & -4 & -14 & -5 \\ -4 & -11 & 22 & -23 \\ -11 & 29 & 0 & 54 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -16 & 4 & -10 & 2 \\ -3 & 2 & 6 & 3 \\ 2 & 5 & -10 & 11 \\ 5 & -13 & 0 & -24 \end{pmatrix}$$

and $rank(A) = 3$.

90. Orbit 90 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 0 & 0 & -6 \\ 0 & 11 & -29 & -12 \\ 28 & 15 & 4 & 9 \\ -22 & -18 & 11 & 65 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 0 & 0 & 2 \\ 0 & -5 & 13 & 6 \\ -12 & -7 & -2 & -3 \\ 10 & 8 & -5 & -29 \end{pmatrix}$$

and $rank(A) = 3$.

91. Orbit 91 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & -2 & -3 & 4 \\ -1 & -1 & 3 & -1 \\ 2 & 1 & -3 & -2 \\ 0 & 0 & 3 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & 4 & 7 & -12 \\ 1 & 1 & -7 & 5 \\ -2 & -3 & 7 & 8 \\ -2 & 0 & -7 & 19 \end{pmatrix}$$

and $rank(A) = 3$.

92. Orbit 92 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -11 & 11 & -3 \\ -11 & -11 & -11 & -19 \\ 31 & 3 & 11 & -5 \\ -19 & 25 & 11 & 61 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 5 & -5 & 1 \\ 5 & 5 & 5 & 9 \\ -13 & -1 & -5 & 3 \\ 9 & -11 & -5 & -27 \end{pmatrix}$$

and $rank(A) = 3$.

93. Orbit 93 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 11 & 33 & 19 \\ -18 & 11 & 0 & 35 \\ 21 & -3 & -10 & 6 \\ 14 & -25 & 15 & -98 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -5 & -15 & -9 \\ 8 & -5 & 0 & -15 \\ -9 & 1 & 4 & -2 \\ -6 & 11 & -7 & 44 \end{pmatrix}$$

and $rank(A) = 3$.

94. Orbit 94 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 25 & -18 & -6 \\ 1 & -3 & 18 & -16 \\ -15 & 11 & -18 & -8 \\ 21 & -11 & -18 & 58 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -11 & 8 & 2 \\ -1 & 1 & -8 & 8 \\ 7 & -5 & 8 & 4 \\ -9 & 5 & 8 & -26 \end{pmatrix}$$

and $rank(A) = 3$.

95. Orbit 95 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -2 & 15 & -8 \\ 13 & 3 & -3 & 9 \\ 8 & -3 & 15 & 8 \\ -14 & -4 & -5 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 25 & 4 & -35 & 16 \\ -29 & -7 & 7 & -17 \\ -16 & 5 & -35 & -14 \\ 32 & 8 & 9 & 19 \end{pmatrix}$$

and $rank(A) = 3$.

96. Orbit 96 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 5 & -3 & -4 \\ 0 & 5 & -3 & -4 \\ -3 & 0 & 2 & -1 \\ -1 & 4 & -4 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -11 & 7 & 6 \\ -2 & -13 & 5 & 12 \\ 9 & 0 & -4 & 5 \\ 1 & -10 & 8 & 3 \end{pmatrix}$$

and $rank(A) = 3$.

97. Orbit 97 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -1 & -1 & 1 & -5 \\ 0 & 14 & 8 & -2 \\ -5 & 3 & 11 & 1 \\ -4 & -4 & 4 & 4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 1 & -1 & 1 \\ 0 & -6 & -4 & 2 \\ 3 & -1 & -5 & 1 \\ 2 & 2 & -2 & -2 \end{pmatrix}$$

and $rank(A) = 3$.

98. Orbit 98 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 11 & -33 & -3 \\ 25 & 7 & 72 & -12 \\ 3 & 36 & -12 & 13 \\ 11 & -18 & -57 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -5 & 15 & 1 \\ -11 & -3 & -32 & 6 \\ -1 & -16 & 6 & -5 \\ -5 & 8 & 25 & 6 \end{pmatrix}$$

and $rank(A) = 3$.

99. Orbit 99 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 50 & 37 & 10 & 19 \\ -47 & -18 & -7 & -8 \\ -37 & -28 & 25 & -26 \\ -4 & 33 & 14 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -22 & -17 & -4 & -9 \\ 21 & 8 & 3 & 4 \\ 17 & 12 & -11 & 12 \\ 2 & -15 & -6 & -7 \end{pmatrix}$$

and $rank(A) = 3$.

100. Orbit 100 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 11 & 0 & -13 \\ -11 & 11 & 11 & 17 \\ -22 & -3 & 7 & 2 \\ 7 & 11 & 4 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -5 & 0 & 5 \\ 5 & -5 & -5 & -7 \\ 10 & 1 & -3 & 0 \\ -3 & -5 & -2 & -10 \end{pmatrix}$$

and $rank(A) = 3$.

101. Orbit 101 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & -18 & -18 & -60 \\ -11 & -18 & -29 & 64 \\ 14 & 4 & -11 & 13 \\ 21 & 4 & -22 & 69 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & 8 & 8 & 26 \\ 5 & 8 & 13 & -28 \\ -6 & -2 & 5 & -5 \\ -9 & -2 & 10 & -31 \end{pmatrix}$$

and $rank(A) = 3$.

102. Orbit 102 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 18 & 10 & -10 \\ 8 & 0 & 8 & 6 \\ 7 & -7 & -15 & 7 \\ -11 & 11 & -17 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 2 & -8 & -4 & 4 \\ -4 & 0 & -4 & -2 \\ -3 & 3 & 7 & -3 \\ 5 & -5 & 7 & 5 \end{pmatrix}$$

and $rank(A) = 3$.

103. Orbit 103 has incidence 24 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 32 & 29 & -3 & 8 \\ -18 & -101 & -47 & 28 \\ -26 & 37 & -3 & -30 \\ -62 & -43 & -39 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -14 & -13 & 1 & -4 \\ 8 & 45 & 21 & -12 \\ 12 & -17 & 1 & 14 \\ 28 & 19 & 17 & 10 \end{pmatrix}$$

and $rank(A) = 3$.

104. Orbit 104 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & -7 & -25 & 8 \\ 29 & -18 & 0 & 17 \\ 3 & -14 & 4 & 13 \\ 0 & -3 & -21 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & 3 & 11 & -4 \\ -13 & 8 & 0 & -7 \\ -1 & 6 & -2 & -5 \\ 0 & 1 & 9 & -2 \end{pmatrix}$$

and $rank(A) = 3$.

105. Orbit 105 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -19 & 20 & -4 & -23 \\ -6 & 16 & 0 & 24 \\ -18 & 8 & 7 & 7 \\ -15 & 14 & 11 & 34 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 9 & -8 & 2 & 7 \\ 2 & -8 & 0 & -8 \\ 8 & -4 & -3 & -1 \\ 7 & -6 & -5 & -16 \end{pmatrix}$$

and $rank(A) = 3$.

106. Orbit 106 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 19 & 13 & 64 & 4 \\ 0 & -13 & -32 & 21 \\ 8 & 25 & -7 & -22 \\ -25 & 13 & -13 & -51 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -9 & -5 & -28 & -10 \\ 0 & 5 & 14 & -3 \\ 2 & -13 & 1 & 22 \\ 13 & -5 & 5 & 23 \end{pmatrix}$$

and $rank(A) = 3$.

107. Orbit 107 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 25 & 0 & 19 & 4 \\ -25 & -13 & 39 & 3 \\ 1 & -32 & -38 & -3 \\ 13 & -19 & 6 & 0 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -13 & 0 & -9 & -10 \\ 13 & 5 & -15 & 9 \\ 3 & 14 & 18 & 13 \\ -5 & 9 & -4 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

108. Orbit 108 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 32 & 7 & -42 \\ 0 & 7 & -4 & -5 \\ -4 & -11 & 0 & 13 \\ 29 & 0 & 47 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -14 & -3 & 18 \\ 0 & -3 & 2 & 3 \\ 2 & 5 & 0 & -5 \\ -13 & 0 & -21 & 8 \end{pmatrix}$$

and $rank(A) = 3$.

109. Orbit 109 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -36 & 47 & 12 \\ -7 & -40 & 0 & 17 \\ -1 & 11 & 4 & -16 \\ -15 & -7 & -7 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 16 & -21 & -6 \\ 3 & 18 & 0 & -7 \\ 1 & -5 & -2 & 8 \\ 7 & 3 & 3 & 13 \end{pmatrix}$$

and $rank(A) = 3$.

110. Orbit 110 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 21 & 29 & -7 & 1 \\ -18 & 22 & -7 & 17 \\ 14 & -3 & -7 & -12 \\ 25 & -18 & -21 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -9 & -13 & 3 & -1 \\ 8 & -10 & 3 & -7 \\ -6 & 1 & 3 & 6 \\ -11 & 8 & 9 & 16 \end{pmatrix}$$

and $rank(A) = 3$.

111. Orbit 111 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -33 & -14 & -18 & 23 \\ 11 & 7 & 0 & -12 \\ -19 & 4 & 29 & 6 \\ -33 & -25 & 11 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 15 & 6 & 8 & -11 \\ -5 & -3 & 0 & 6 \\ 9 & -2 & -13 & -2 \\ 15 & 11 & -5 & -21 \end{pmatrix}$$

and $rank(A) = 3$.

112. Orbit 112 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & -3 & -4 & -6 \\ 11 & 4 & 7 & 6 \\ -4 & 15 & 25 & 6 \\ 0 & 0 & 0 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & 1 & 2 & 2 \\ -5 & -2 & -3 & -2 \\ 2 & -7 & -11 & -2 \\ 0 & 0 & 0 & -10 \end{pmatrix}$$

and $rank(A) = 3$.

113. Orbit 113 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 1 & -1 & 4 \\ 0 & -2 & 2 & 2 \\ 1 & -9 & -4 & -4 \\ 1 & 0 & -1 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & -1 & 3 & -12 \\ 0 & 6 & -6 & -2 \\ -1 & 19 & 10 & 12 \\ -3 & 2 & 1 & 8 \end{pmatrix}$$

and $rank(A) = 3$.

114. Orbit 114 has incidence 18 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 94 & 14 & -42 \\ -18 & 105 & 0 & -45 \\ -11 & 29 & -22 & -12 \\ -29 & -76 & 8 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -42 & -6 & 18 \\ 8 & -47 & 0 & 21 \\ 5 & -13 & 10 & 6 \\ 13 & 34 & -4 & -15 \end{pmatrix}$$

and $rank(A) = 3$.

115. Orbit 115 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -11 & 40 & -6 \\ 11 & -43 & 0 & 2 \\ 18 & -14 & 29 & 9 \\ -22 & 18 & 11 & -21 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 5 & -18 & 2 \\ -5 & 19 & 0 & 0 \\ -8 & 6 & -13 & -3 \\ 10 & -8 & -5 & 9 \end{pmatrix}$$

and $rank(A) = 3$.

116. Orbit 116 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & -15 & -15 & 23 \\ 33 & -39 & -3 & -27 \\ -4 & 18 & 18 & -26 \\ -14 & -14 & 22 & -80 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 7 & 7 & -11 \\ -15 & 17 & 1 & 13 \\ 2 & -8 & -8 & 12 \\ 6 & 6 & -10 & 36 \end{pmatrix}$$

and $rank(A) = 3$.

117. Orbit 117 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -29 & 7 & -7 & 23 \\ 7 & 14 & -11 & -12 \\ 43 & -25 & 4 & 6 \\ 7 & 4 & -14 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 13 & -3 & 3 & -11 \\ -3 & -6 & 5 & 6 \\ -19 & 11 & -2 & -2 \\ -3 & -2 & 6 & -5 \end{pmatrix}$$

and $rank(A) = 3$.

118. Orbit 118 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 29 & -7 & -29 & -13 \\ -11 & -58 & 40 & -23 \\ 10 & 11 & -36 & -9 \\ 36 & -18 & 11 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -13 & 3 & 13 & 5 \\ 5 & 26 & -18 & 11 \\ -4 & -5 & 16 & 5 \\ -16 & 8 & -5 & -3 \end{pmatrix}$$

and $rank(A) = 3$.

119. Orbit 119 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -7 & 36 & 11 & -24 \\ -4 & -29 & -25 & 6 \\ 50 & 40 & 33 & 27 \\ -11 & -11 & -25 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & -16 & -5 & 10 \\ 2 & 13 & 11 & -2 \\ -22 & -18 & -15 & -11 \\ 5 & 5 & 11 & 5 \end{pmatrix}$$

and $rank(A) = 3$.

120. Orbit 120 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 18 & -18 & -60 \\ -7 & 29 & 29 & -1 \\ 39 & 33 & 25 & 9 \\ 0 & -58 & 0 & 80 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -8 & 8 & 26 \\ 3 & -13 & -13 & 1 \\ -17 & -15 & -11 & -3 \\ 0 & 26 & 0 & -36 \end{pmatrix}$$

and $rank(A) = 3$.

121. Orbit 121 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 18 & -29 & 30 \\ 8 & -14 & 22 & 6 \\ 104 & 29 & -11 & 6 \\ -7 & 11 & -18 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -8 & 13 & -14 \\ -4 & 6 & -10 & -2 \\ -46 & -13 & 5 & -2 \\ 3 & -5 & 8 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

122. Orbit 122 has incidence 16 stabilizer of size 8. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 29 & 14 & 26 \\ 18 & -47 & 0 & -59 \\ -1 & 4 & -22 & -19 \\ 14 & -36 & 8 & -94 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -13 & -6 & -12 \\ -8 & 21 & 0 & 27 \\ 1 & -2 & 10 & 9 \\ -6 & 16 & -4 & 42 \end{pmatrix}$$

and $rank(A) = 3$.

123. Orbit 123 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & -7 & 11 & 52 \\ 22 & -25 & -7 & 60 \\ 7 & -18 & 0 & 17 \\ 11 & -50 & 4 & -43 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & 3 & -5 & -24 \\ -10 & 11 & 3 & -26 \\ -3 & 8 & 0 & -7 \\ -5 & 22 & -2 & 19 \end{pmatrix}$$

and $rank(A) = 3$.

124. Orbit 124 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 19 & -6 & 13 & -2 \\ -19 & 13 & -26 & -4 \\ -5 & -19 & -7 & -3 \\ 7 & 0 & -32 & -25 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -9 & 4 & -5 & -6 \\ 9 & -5 & 10 & 10 \\ 7 & 9 & 1 & 13 \\ -1 & 0 & 14 & 13 \end{pmatrix}$$

and $rank(A) = 3$.

125. Orbit 125 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 4 & -1 & -11 & 4 \\ -4 & -4 & -10 & -8 \\ 2 & 0 & 1 & 5 \\ -4 & 11 & 0 & 7 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -2 & 1 & 5 & -4 \\ 2 & 2 & 4 & 6 \\ 0 & 0 & -1 & 1 \\ 2 & -5 & 0 & -3 \end{pmatrix}$$

and $rank(A) = 3$.

126. Orbit 126 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 47 & 14 & 23 \\ 18 & -47 & 0 & -81 \\ -4 & 11 & -22 & -23 \\ 18 & -47 & 8 & -101 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -21 & -6 & -11 \\ -8 & 21 & 0 & 37 \\ 2 & -5 & 10 & 11 \\ -8 & 21 & -4 & 45 \end{pmatrix}$$

and $rank(A) = 3$.

127. Orbit 127 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 25 & 47 & 5 \\ -18 & 0 & 7 & -5 \\ 7 & 4 & 0 & 9 \\ 36 & 7 & 18 & -3 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -11 & -21 & -3 \\ 8 & 0 & -3 & 3 \\ -3 & -2 & 0 & -3 \\ -16 & -3 & -8 & 1 \end{pmatrix}$$

and $rank(A) = 3$.

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128. Orbit 128 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & 25 & -18 & -6 \\ 0 & 11 & 29 & -12 \\ 11 & -3 & -11 & 9 \\ -4 & 3 & -36 & 1 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & -11 & 8 & 2 \\ 0 & -5 & -13 & 6 \\ -5 & 1 & 5 & -3 \\ 2 & -1 & 16 & -1 \end{pmatrix}$$

and $rank(A) = 3$.

129. Orbit 129 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & -29 & 36 & 12 \\ 4 & -14 & -29 & -5 \\ 29 & -3 & -40 & 20 \\ -22 & -4 & 11 & -21 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 13 & -16 & -6 \\ -2 & 6 & 13 & 3 \\ -13 & 1 & 18 & -8 \\ 10 & 2 & -5 & 9 \end{pmatrix}$$

and $rank(A) = 3$.

130. Orbit 130 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -13 & 13 & 13 & -15 \\ 0 & 26 & -26 & -10 \\ -31 & -19 & -7 & -3 \\ -6 & -32 & -32 & -6 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 5 & -5 & -5 & -1 \\ 0 & -10 & 10 & 14 \\ 17 & 9 & 1 & 13 \\ 4 & 14 & 14 & 4 \end{pmatrix}$$

and $rank(A) = 3$.

131. Orbit 131 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 29 & 0 & 12 \\ 7 & -18 & 22 & -5 \\ -8 & 22 & -72 & -2 \\ 18 & 11 & 22 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -13 & 0 & -6 \\ -3 & 8 & -10 & 3 \\ 4 & -10 & 32 & 2 \\ -8 & -5 & -10 & -3 \end{pmatrix}$$

and $rank(A) = 3$.

132. Orbit 132 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & -11 & 18 & -12 \\ -6 & 8 & -14 & 12 \\ -27 & 4 & 7 & -10 \\ 4 & -7 & 11 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & 5 & -8 & 4 \\ 2 & -4 & 6 & -4 \\ 13 & -2 & -3 & 6 \\ -2 & 3 & -5 & 0 \end{pmatrix}$$

and $rank(A) = 3$.

133. Orbit 133 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 18 & -29 & -6 \\ 8 & -14 & 22 & -16 \\ 32 & 29 & -11 & 6 \\ -7 & 11 & -18 & -58 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -8 & 13 & 2 \\ -4 & 6 & -10 & 8 \\ -14 & -13 & 5 & -2 \\ 3 & -5 & 8 & 26 \end{pmatrix}$$

and $rank(A) = 3$.

134. Orbit 134 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 19 & -6 & -39 & -2 \\ 13 & 19 & -20 & -24 \\ 14 & 0 & -14 & -10 \\ 20 & 13 & -7 & -76 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -9 & 4 & 15 & -6 \\ -5 & -9 & 6 & 16 \\ -2 & 0 & 2 & 14 \\ -6 & -5 & 1 & 36 \end{pmatrix}$$

and $rank(A) = 3$.

135. Orbit 135 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -18 & 11 & 14 & 17 \\ 7 & -11 & -4 & -10 \\ 3 & 11 & 3 & 1 \\ 0 & -25 & 9 & -24 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 8 & -5 & -6 & -9 \\ -3 & 5 & 2 & 6 \\ -1 & -5 & -1 & 1 \\ 0 & 11 & -5 & 10 \end{pmatrix}$$

and $rank(A) = 3$.

136. Orbit 136 has incidence 26 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 11 & 29 & 12 \\ 0 & -11 & -29 & 10 \\ 6 & 11 & -7 & -20 \\ -22 & 11 & -7 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -5 & -13 & -6 \\ 0 & 5 & 13 & -4 \\ -2 & -5 & 3 & 10 \\ 10 & -5 & 3 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

137. Orbit 137 has incidence 25 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -15 & 22 & -47 & 12 \\ 33 & 25 & -11 & -19 \\ 10 & -7 & -25 & 6 \\ 14 & 4 & 33 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 7 & -10 & 21 & -6 \\ -15 & -11 & 5 & 9 \\ -4 & 3 & 11 & -2 \\ -6 & -2 & -15 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

138. Orbit 138 has incidence 25 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & -4 & -18 & -10 \\ 0 & -29 & 18 & 17 \\ -23 & 3 & -18 & 6 \\ -3 & 22 & 18 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 2 & 2 & 8 & 4 \\ 0 & 13 & -8 & -7 \\ 11 & -1 & 8 & -2 \\ 1 & -10 & -8 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

139. Orbit 139 has incidence 25 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -7 & 29 & 1 \\ -7 & -22 & -11 & 10 \\ -1 & 11 & 4 & -16 \\ -15 & 4 & -14 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 3 & -13 & -1 \\ 3 & 10 & 5 & -4 \\ 1 & -5 & -2 & 8 \\ 7 & -2 & 6 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

140. Orbit 140 has incidence 24 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & -25 & -18 & -6 \\ 0 & -58 & 0 & -30 \\ 17 & 4 & 29 & -16 \\ -4 & -7 & 11 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 11 & 8 & 2 \\ 0 & 26 & 0 & 14 \\ -7 & -2 & -13 & 8 \\ 2 & 3 & -5 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

141. Orbit 141 has incidence 24 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & 15 & 7 & 9 \\ 0 & 7 & 40 & -5 \\ -33 & 29 & -36 & 24 \\ -4 & -7 & 11 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & -7 & -3 & -5 \\ 0 & -3 & -18 & 3 \\ 15 & -13 & 16 & -10 \\ 2 & 3 & -5 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

142. Orbit 142 has incidence 23 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & 7 & 0 & 12 \\ -11 & 11 & -11 & -19 \\ 3 & -18 & -15 & -16 \\ -3 & 8 & 4 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & -3 & 0 & -6 \\ 5 & -5 & 5 & 9 \\ -1 & 8 & 7 & 8 \\ 1 & -4 & -2 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

143. Orbit 143 has incidence 23 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -7 & 47 & -18 & -6 \\ 0 & 72 & -22 & 20 \\ 25 & 18 & 7 & -2 \\ -18 & -29 & 11 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & -21 & 8 & 2 \\ 0 & -32 & 10 & -8 \\ -11 & -8 & -3 & 2 \\ 8 & 13 & -5 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

144. Orbit 144 has incidence 23 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & 7 & 7 & 3 \\ 0 & 22 & 0 & 12 \\ -5 & -3 & -25 & 7 \\ -4 & -4 & 4 & -18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & -3 & -3 & -3 \\ 0 & -10 & 0 & -4 \\ 3 & 1 & 11 & -1 \\ 2 & 2 & -2 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

145. Orbit 145 has incidence 23 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 0 & -3 & 12 \\ 0 & 11 & -7 & 10 \\ 3 & -7 & -14 & 10 \\ -4 & -18 & 12 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 0 & 1 & -6 \\ 0 & -5 & 3 & -4 \\ -1 & 3 & 6 & -4 \\ 2 & 8 & -6 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

146. Orbit 146 has incidence 23 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 0 & 14 & 16 \\ 18 & -29 & -11 & 6 \\ -11 & -18 & 7 & -16 \\ 29 & 11 & 26 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 0 & -6 & -8 \\ -8 & 13 & 5 & -2 \\ 5 & 8 & -3 & 8 \\ -13 & -5 & -12 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

147. Orbit 147 has incidence 22 stabilizer of size 8. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & -7 & -11 & 2 \\ -4 & -19 & 8 & -3 \\ -12 & 10 & -10 & 0 \\ -4 & 0 & 1 & -19 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & 3 & 5 & -2 \\ 2 & 9 & -4 & 3 \\ 6 & -4 & 4 & 2 \\ 2 & 0 & -1 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

148. Orbit 148 has incidence 22 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -7 & -29 & 29 & 1 \\ 14 & -4 & -11 & 13 \\ 39 & 36 & -18 & -9 \\ -4 & 25 & 22 & 43 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & 13 & -13 & -1 \\ -6 & 2 & 5 & -5 \\ -17 & -16 & 8 & 5 \\ 2 & -11 & -10 & -19 \end{pmatrix}$$

and $rank(A) = 4$.

149. Orbit 149 has incidence 22 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -2 & -5 & 0 & 1 \\ -1 & -4 & -1 & 0 \\ -2 & 1 & 4 & -1 \\ -3 & 0 & -3 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & 11 & 0 & -5 \\ 3 & 10 & 1 & 4 \\ 6 & -1 & -10 & 7 \\ 7 & 0 & 5 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

150. Orbit 150 has incidence 22 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -29 & 0 & 25 & -2 \\ 0 & 25 & -7 & 2 \\ 25 & -7 & 22 & 2 \\ 18 & -18 & -18 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 13 & 0 & -11 & 0 \\ 0 & -11 & 3 & 0 \\ -11 & 3 & -10 & 0 \\ -8 & 8 & 8 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

151. Orbit 151 has incidence 22 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -22 & 0 & 0 & -6 \\ 22 & 11 & 7 & -12 \\ -30 & -7 & -18 & -5 \\ -22 & 18 & 11 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 10 & 0 & 0 & 2 \\ -10 & -5 & -3 & 6 \\ 14 & 3 & 8 & 3 \\ 10 & -8 & -5 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

152. Orbit 152 has incidence 22 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -22 & 11 & -7 & 12 \\ 4 & 0 & 7 & 17 \\ 17 & 4 & -7 & 6 \\ 7 & -7 & -7 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 10 & -5 & 3 & -6 \\ -2 & 0 & -3 & -7 \\ -7 & -2 & 3 & -2 \\ -3 & 3 & 3 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

153. Orbit 153 has incidence 22 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 0 & 21 & 19 \\ -14 & -4 & -3 & -1 \\ -15 & -3 & 18 & -8 \\ -11 & -7 & 8 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 0 & -9 & -9 \\ 6 & 2 & 1 & 1 \\ 7 & 1 & -8 & 4 \\ 5 & 3 & -4 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

154. Orbit 154 has incidence 22 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 14 & -22 & -36 & 30 \\ -10 & -25 & 36 & 35 \\ 39 & 29 & -22 & 10 \\ -21 & 4 & 22 & 105 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -6 & 10 & 16 & -14 \\ 4 & 11 & -16 & -15 \\ -17 & -13 & 10 & -4 \\ 9 & -2 & -10 & -47 \end{pmatrix}$$

and $rank(A) = 4$.

155. Orbit 155 has incidence 22 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 9 & -18 & -17 & -22 \\ 8 & 0 & 9 & 15 \\ -36 & 18 & 18 & -22 \\ -35 & 0 & -8 & 9 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -5 & 10 & 7 & 0 \\ -2 & 0 & -5 & -1 \\ 20 & -10 & -10 & 22 \\ 17 & 0 & 2 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

156. Orbit 156 has incidence 22 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & -8 & 7 & -15 \\ 3 & 0 & -4 & 13 \\ -16 & 8 & -8 & -4 \\ 15 & 0 & -3 & 4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & 4 & -3 & 5 \\ -1 & 0 & 2 & -5 \\ 8 & -4 & 4 & 4 \\ -7 & 0 & 1 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

157. Orbit 157 has incidence 22 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 29 & -25 & -6 \\ -7 & -22 & -11 & -12 \\ 3 & -3 & 11 & -5 \\ 14 & 4 & -25 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -13 & 11 & 2 \\ 3 & 10 & 5 & 6 \\ -1 & 1 & -5 & 3 \\ -6 & -2 & 11 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

158. Orbit 158 has incidence 22 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 11 & 11 & 5 \\ -3 & 33 & -25 & -5 \\ -33 & -11 & 25 & -5 \\ 11 & 11 & 11 & -47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -5 & -5 & -3 \\ 1 & -15 & 11 & 3 \\ 15 & 5 & -11 & 3 \\ -5 & -5 & -5 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

159. Orbit 159 has incidence 21 stabilizer of size 12. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 0 & -18 & 1 \\ 0 & 15 & 4 & -5 \\ -26 & 4 & 4 & 2 \\ 7 & 11 & 4 & 14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 0 & 8 & -1 \\ 0 & -7 & -2 & 3 \\ 12 & -2 & -2 & 0 \\ -3 & -5 & -2 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

160. Orbit 160 has incidence 21 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & 25 & 18 & -6 \\ 4 & 18 & 4 & -12 \\ -8 & -7 & -18 & -5 \\ 3 & -36 & 18 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & -11 & -8 & 2 \\ -2 & -8 & -2 & 6 \\ 4 & 3 & 8 & 3 \\ -1 & 16 & -8 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

161. Orbit 161 has incidence 21 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -9 & 6 & -5 & -4 \\ -5 & 2 & 0 & 1 \\ -3 & 5 & -8 & 2 \\ -1 & 5 & -3 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 21 & -14 & 11 & 6 \\ 9 & -4 & 0 & 1 \\ 7 & -11 & 18 & -2 \\ 5 & -9 & 7 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

162. Orbit 162 has incidence 21 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & 7 & -4 & -9 \\ -7 & 18 & 0 & -5 \\ 2 & 2 & 7 & 7 \\ 3 & -3 & -3 & 25 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & -3 & 2 & 3 \\ 3 & -8 & 0 & 3 \\ 0 & -2 & -3 & -1 \\ -1 & 1 & 1 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

163. Orbit 163 has incidence 21 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 11 & 18 & 30 \\ 18 & 43 & -25 & -16 \\ 14 & -22 & 22 & -38 \\ -11 & -18 & 15 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -5 & -8 & -14 \\ -8 & -19 & 11 & 8 \\ -6 & 10 & -10 & 18 \\ 5 & 8 & -7 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

164. Orbit 164 has incidence 21 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 6 & -13 & 19 & -2 \\ -19 & -44 & -25 & -10 \\ -12 & 26 & 26 & 16 \\ -13 & -19 & -20 & 12 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -4 & 5 & -9 & -6 \\ 9 & 22 & 13 & 14 \\ 8 & -10 & -10 & 4 \\ 5 & 9 & 6 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

165. Orbit 165 has incidence 21 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 3 & -4 & 1 \\ 0 & 4 & 0 & -1 \\ -1 & 7 & 7 & -1 \\ -3 & -3 & 4 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 2 & -1 & 2 & -1 \\ 0 & -2 & 0 & 1 \\ 1 & -3 & -3 & 1 \\ 1 & 1 & -2 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

166. Orbit 166 has incidence 21 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -22 & 18 & 25 & -13 \\ -11 & 43 & 22 & 2 \\ 7 & 11 & 18 & 6 \\ -18 & -22 & -7 & -47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 10 & -8 & -11 & 5 \\ 5 & -19 & -10 & 0 \\ -3 & -5 & -8 & -2 \\ 8 & 10 & 3 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

167. Orbit 167 has incidence 21 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -11 & 4 & -7 & 2 \\ -6 & 0 & 0 & -2 \\ -4 & 7 & -11 & -2 \\ 5 & 9 & -4 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 5 & -2 & 3 & -2 \\ 2 & 0 & 0 & 2 \\ 2 & -3 & 5 & 2 \\ -1 & -3 & 2 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

168. Orbit 168 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 0 & -11 & -10 \\ -22 & 25 & -7 & -12 \\ -19 & 7 & 8 & 16 \\ -4 & -18 & 4 & 90 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & 0 & 5 & 4 \\ 10 & -11 & 3 & 6 \\ 9 & -3 & -4 & -6 \\ 2 & 8 & -2 & -40 \end{pmatrix}$$

and $rank(A) = 4$.

169. Orbit 169 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 18 & -7 & -6 \\ -22 & 7 & 4 & -5 \\ 32 & 11 & 22 & -9 \\ 7 & 0 & -25 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -8 & 3 & 2 \\ 10 & -3 & -2 & 3 \\ -14 & -5 & -10 & 5 \\ -3 & 0 & 11 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

170. Orbit 170 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & -18 & 18 & 26 \\ -4 & -36 & 15 & -5 \\ 10 & 15 & 19 & -38 \\ -4 & -25 & -14 & -73 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & 8 & -8 & -12 \\ 2 & 16 & -7 & 3 \\ -4 & -7 & -9 & 18 \\ 2 & 11 & 6 & 33 \end{pmatrix}$$

and $rank(A) = 4$.

171. Orbit 171 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 47 & -40 & -29 & 16 \\ -29 & -58 & 11 & 2 \\ 14 & 7 & -18 & 9 \\ 18 & 47 & 0 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -21 & 18 & 13 & -8 \\ 13 & 26 & -5 & 0 \\ -6 & -3 & 8 & -3 \\ -8 & -21 & 0 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

172. Orbit 172 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 6 & 5 & 3 & 2 \\ 8 & 4 & 7 & -1 \\ -1 & -8 & 7 & -2 \\ 3 & -3 & 3 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -14 & -11 & -7 & -8 \\ -18 & -8 & -15 & 7 \\ 3 & 18 & -15 & 10 \\ -7 & 7 & -7 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

173. Orbit 173 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & -36 & -11 & -2 \\ 0 & -58 & 22 & -16 \\ 3 & 0 & -18 & -9 \\ 18 & 0 & 29 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & 16 & 5 & 0 \\ 0 & 26 & -10 & 8 \\ -1 & 0 & 8 & 5 \\ -8 & 0 & -13 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

174. Orbit 174 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -1 & 2 & -3 & 0 \\ 4 & 3 & 1 & 0 \\ -5 & -5 & -8 & 0 \\ 4 & 0 & 0 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 3 & -4 & 7 & -4 \\ -10 & -7 & -3 & 4 \\ 13 & 11 & 18 & 4 \\ -8 & 0 & 0 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

175. Orbit 175 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 7 & 36 & -2 \\ 11 & 29 & 22 & 2 \\ -33 & -29 & 0 & 2 \\ -11 & -29 & 0 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -3 & -16 & 0 \\ -5 & -13 & -10 & 0 \\ 15 & 13 & 0 & 0 \\ 5 & 13 & 0 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

176. Orbit 176 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 11 & -11 & -17 \\ 0 & -4 & 11 & 13 \\ -4 & 7 & -25 & 20 \\ 7 & 22 & -3 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -5 & 5 & 7 \\ 0 & 2 & -5 & -5 \\ 2 & -3 & 11 & -8 \\ -3 & -10 & 1 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

177. Orbit 177 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 2 & 2 & 2 \\ -1 & 5 & 1 & 1 \\ 2 & 0 & -4 & 0 \\ 1 & 1 & -1 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & -4 & -4 & -8 \\ 3 & -11 & -3 & 1 \\ -2 & 0 & 8 & 4 \\ -1 & -1 & 1 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

178. Orbit 178 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 6 & 5 & 3 \\ -5 & 1 & -5 & 1 \\ 1 & 6 & 1 & 2 \\ -4 & 1 & 1 & -10 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -12 & -11 & -11 \\ 11 & -3 & 11 & 1 \\ -1 & -14 & -3 & 0 \\ 10 & -1 & -3 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

179. Orbit 179 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 22 & -11 & -24 \\ 0 & 29 & 18 & -5 \\ -11 & 4 & 7 & 6 \\ -4 & 3 & -14 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -10 & 5 & 10 \\ 0 & -13 & -8 & 3 \\ 5 & -2 & -3 & -2 \\ 2 & -1 & 6 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

180. Orbit 180 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 11 & -18 & -6 \\ 4 & 4 & 18 & -12 \\ -8 & -7 & -18 & -5 \\ 3 & 0 & -18 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -5 & 8 & 2 \\ -2 & -2 & -8 & 6 \\ 4 & 3 & 8 & 3 \\ -1 & 0 & 8 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

181. Orbit 181 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 9 & 4 & 0 \\ -2 & 3 & -1 & -4 \\ -2 & 0 & 6 & 0 \\ -1 & -4 & -1 & 6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -7 & -19 & -10 & -4 \\ 4 & -7 & 3 & 12 \\ 6 & 0 & -14 & 4 \\ 3 & 10 & 1 & -14 \end{pmatrix}$$

and $rank(A) = 4$.

182. Orbit 182 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & 2 & 0 & 3 \\ 1 & 0 & 1 & -2 \\ -1 & 3 & 3 & -1 \\ -1 & -1 & -2 & -10 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -1 & -4 & 0 & -9 \\ -1 & 0 & -3 & 8 \\ 5 & -7 & -7 & 5 \\ 5 & 3 & 4 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

183. Orbit 183 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -7 & 26 & 5 \\ -18 & -11 & 0 & -1 \\ 25 & 4 & 15 & 6 \\ 29 & 0 & -3 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 3 & -12 & -3 \\ 8 & 5 & 0 & 1 \\ -11 & -2 & -7 & -2 \\ -13 & 0 & 1 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

184. Orbit 184 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & -36 & -40 & -13 \\ 22 & -51 & -18 & -5 \\ 32 & 4 & 18 & -34 \\ 7 & 11 & 18 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & 16 & 18 & 5 \\ -10 & 23 & 8 & 3 \\ -14 & -2 & -8 & 16 \\ -3 & -5 & -8 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

185. Orbit 185 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & -4 & -22 & 5 \\ 18 & 11 & 0 & 13 \\ -22 & 36 & 36 & 6 \\ -25 & -21 & 22 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & 2 & 10 & -3 \\ -8 & -5 & 0 & -5 \\ 10 & -16 & -16 & -2 \\ 11 & 9 & -10 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

186. Orbit 186 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -18 & -21 & -3 & -12 \\ 8 & 4 & 11 & 19 \\ -15 & 0 & 25 & 16 \\ -3 & 5 & -17 & 5 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 8 & 9 & 1 & 4 \\ -4 & -2 & -5 & -7 \\ 7 & 0 & -11 & -6 \\ 1 & -3 & 7 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

187. Orbit 187 has incidence 21 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -21 & -18 & -22 & -3 \\ 19 & 4 & 29 & -30 \\ 18 & 4 & -18 & -48 \\ 6 & -4 & 11 & -43 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 9 & 8 & 10 & 1 \\ -9 & -2 & -13 & 14 \\ -8 & -2 & 8 & 22 \\ -2 & 2 & -5 & 19 \end{pmatrix}$$

and $rank(A) = 4$.

188. Orbit 188 has incidence 20 stabilizer of size 48. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & 0 & -18 & 1 \\ -11 & -14 & -4 & 13 \\ 3 & -14 & -4 & -9 \\ 11 & 0 & 4 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & 0 & 8 & -1 \\ 5 & 6 & 2 & -5 \\ -1 & 6 & 2 & 5 \\ -5 & 0 & -2 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

189. Orbit 189 has incidence 20 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 4 & -7 & -11 & 2 \\ -4 & 10 & -10 & -14 \\ -12 & -8 & 1 & 7 \\ -4 & -11 & 8 & 57 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -2 & 3 & 5 & -2 \\ 2 & -4 & 4 & 8 \\ 6 & 4 & -1 & -1 \\ 2 & 5 & -4 & -25 \end{pmatrix}$$

and $rank(A) = 4$.

190. Orbit 190 has incidence 20 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 4 & 11 & -14 & -13 \\ 11 & 11 & -25 & -5 \\ 0 & 11 & -7 & 2 \\ -29 & -11 & -18 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -2 & -5 & 6 & 5 \\ -5 & -5 & 11 & 3 \\ 0 & -5 & 3 & 0 \\ 13 & 5 & 8 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

191. Orbit 191 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -7 & 11 & 4 & -6 \\ 7 & 11 & 4 & 6 \\ -15 & 11 & 4 & 6 \\ 7 & 11 & -10 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & -5 & -2 & 2 \\ -3 & -5 & -2 & -2 \\ 7 & -5 & -2 & -2 \\ -3 & -5 & 4 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

192. Orbit 192 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -36 & 18 & 11 & 1 \\ 7 & 4 & -14 & -5 \\ 32 & 4 & 4 & 2 \\ -11 & -18 & -21 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 16 & -8 & -5 & -1 \\ -3 & -2 & 6 & 3 \\ -14 & -2 & -2 & 0 \\ 5 & 8 & 9 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

193. Orbit 193 has incidence 20 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 18 & -11 & 28 & 15 \\ 4 & -29 & -3 & -8 \\ -26 & -14 & 7 & 3 \\ -4 & 4 & 12 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -8 & 5 & -12 & -7 \\ -2 & 13 & 1 & 4 \\ 12 & 6 & -3 & -1 \\ 2 & -2 & -6 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

194. Orbit 194 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & -29 & 0 & 12 \\ 7 & -22 & -11 & -12 \\ -8 & -11 & -15 & -20 \\ 4 & 18 & 4 & -32 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & 13 & 0 & -6 \\ -3 & 10 & 5 & 6 \\ 4 & 5 & 7 & 10 \\ -2 & -8 & -2 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

195. Orbit 195 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -2 & -1 & 0 & 3 \\ -6 & 5 & 3 & -6 \\ -5 & 1 & 4 & -2 \\ -1 & -5 & 1 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & 3 & 0 & -11 \\ 14 & -11 & -7 & 16 \\ 13 & -3 & -10 & 10 \\ 3 & 11 & -3 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

196. Orbit 196 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -40 & 47 & -13 \\ -11 & -11 & 11 & 31 \\ -15 & -22 & 11 & -20 \\ 18 & -29 & -47 & -58 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 18 & -21 & 5 \\ 5 & 5 & -5 & -13 \\ 7 & 10 & -5 & 10 \\ -8 & 13 & 21 & 26 \end{pmatrix}$$

and $rank(A) = 4$.

197. Orbit 197 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 11 & 0 & -5 \\ -7 & 3 & 4 & -2 \\ 9 & -3 & -3 & -7 \\ 6 & -3 & -7 & -4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -5 & 0 & 1 \\ 3 & -1 & -2 & 2 \\ -3 & 1 & 1 & 5 \\ -2 & 1 & 3 & 2 \end{pmatrix}$$

and $rank(A) = 4$.

198. Orbit 198 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 36 & -18 & -11 & -13 \\ 29 & -69 & -18 & -16 \\ 32 & 22 & 29 & -27 \\ -11 & 29 & 0 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -16 & 8 & 5 & 5 \\ -13 & 31 & 8 & 8 \\ -14 & -10 & -13 & 13 \\ 5 & -13 & 0 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

199. Orbit 199 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 0 & 4 & 6 \\ 7 & -3 & -7 & -3 \\ 6 & 8 & -2 & -4 \\ 5 & 5 & -5 & 15 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & 0 & -8 & -18 \\ -15 & 7 & 15 & 11 \\ -12 & -18 & 4 & 14 \\ -11 & -11 & 11 & -33 \end{pmatrix}$$

and $rank(A) = 4$.

200. Orbit 200 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 36 & 14 & 0 & -20 \\ -32 & -36 & 7 & -5 \\ 11 & 22 & 18 & 13 \\ -51 & 36 & 11 & 48 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -16 & -6 & 0 & 8 \\ 14 & 16 & -3 & 3 \\ -5 & -10 & -8 & -5 \\ 23 & -16 & -5 & -22 \end{pmatrix}$$

and $rank(A) = 4$.

201. Orbit 201 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 11 & 0 & -35 \\ -18 & -11 & 0 & -1 \\ -12 & 11 & 22 & -9 \\ -4 & 11 & -36 & 65 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -5 & 0 & 15 \\ 8 & 5 & 0 & 1 \\ 6 & -5 & -10 & 5 \\ 2 & -5 & 16 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

202. Orbit 202 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -3 & -2 & -4 & -3 \\ -1 & 0 & -3 & 0 \\ -2 & 0 & 8 & 2 \\ -4 & 8 & -7 & 3 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & 2 & 2 & -1 \\ 1 & 0 & 1 & 2 \\ 2 & 0 & -4 & 2 \\ 2 & -4 & 3 & -1 \end{pmatrix}$$

and $rank(A) = 4$.

203. Orbit 203 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -10 & -7 & -11 & 10 \\ 18 & 15 & 11 & -10 \\ -12 & -7 & -39 & 4 \\ 10 & 7 & -3 & -8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 4 & 3 & 5 & -6 \\ -8 & -7 & -5 & 6 \\ 6 & 3 & 17 & 0 \\ -4 & -3 & 1 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

204. Orbit 204 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 18 & -11 & 36 & -13 \\ 25 & 7 & 0 & 2 \\ 14 & 0 & 0 & -38 \\ -29 & 18 & 0 & -105 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -8 & 5 & -16 & 5 \\ -11 & -3 & 0 & 0 \\ -6 & 0 & 0 & 18 \\ 13 & -8 & 0 & 47 \end{pmatrix}$$

and $rank(A) = 4$.

205. Orbit 205 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 18 & 18 & 18 & 12 \\ -4 & -11 & 0 & -23 \\ 10 & 0 & -29 & 9 \\ 4 & -7 & 11 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -8 & -8 & -8 & -6 \\ 2 & 5 & 0 & 11 \\ -4 & 0 & 13 & -3 \\ -2 & 3 & -5 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

206. Orbit 206 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & -5 & 3 & 2 \\ 4 & -2 & 0 & 0 \\ -2 & 2 & -5 & -3 \\ 4 & 1 & -2 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 0 & 11 & -7 & -8 \\ -8 & 6 & 0 & 4 \\ 6 & -4 & 11 & 11 \\ -8 & -1 & 4 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

207. Orbit 207 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & -25 & 33 & 5 \\ -11 & -36 & -18 & 13 \\ 25 & 4 & 51 & -16 \\ -11 & -7 & 22 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & 11 & -15 & -3 \\ 5 & 16 & 8 & -5 \\ -11 & -2 & -23 & 8 \\ 5 & 3 & -10 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

208. Orbit 208 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -18 & 29 & -28 \\ -11 & 22 & -18 & 13 \\ 3 & -21 & 22 & 38 \\ -11 & 11 & -25 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 8 & -13 & 12 \\ 5 & -10 & 8 & -5 \\ -1 & 9 & -10 & -16 \\ 5 & -5 & 11 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

209. Orbit 209 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 7 & 47 & 52 \\ -7 & -7 & -29 & 35 \\ 39 & 29 & 22 & 2 \\ 14 & 7 & 40 & -141 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -3 & -21 & -24 \\ 3 & 3 & 13 & -15 \\ -17 & -13 & -10 & 0 \\ -6 & -3 & -18 & 63 \end{pmatrix}$$

and $rank(A) = 4$.

210. Orbit 210 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & 4 & 14 & 5 \\ 11 & 7 & -14 & 2 \\ -4 & 11 & 0 & -1 \\ 0 & 14 & -14 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & -2 & -6 & -3 \\ -5 & -3 & 6 & 0 \\ 2 & -5 & 0 & 1 \\ 0 & -6 & 6 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

211. Orbit 211 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -13 & -19 & -32 & -28 \\ 0 & 19 & 13 & -30 \\ -5 & -7 & -71 & -3 \\ -6 & -19 & -26 & 51 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 5 & 9 & 14 & 4 \\ 0 & -9 & -5 & 20 \\ 7 & 1 & 29 & 13 \\ 4 & 9 & 10 & -23 \end{pmatrix}$$

and $rank(A) = 4$.

212. Orbit 212 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 11 & -47 & -53 \\ -7 & -11 & 18 & -30 \\ -30 & 11 & -7 & 2 \\ -4 & 11 & -36 & 123 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -5 & 21 & 23 \\ 3 & 5 & -8 & 14 \\ 14 & -5 & 3 & 0 \\ 2 & -5 & 16 & -55 \end{pmatrix}$$

and $rank(A) = 4$.

213. Orbit 213 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -29 & 0 & -60 \\ 26 & -47 & 0 & -23 \\ 43 & -18 & 36 & -5 \\ -44 & 0 & 0 & 44 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 13 & 0 & 26 \\ -12 & 21 & 0 & 11 \\ -19 & 8 & -16 & 3 \\ 20 & 0 & 0 & -20 \end{pmatrix}$$

and $rank(A) = 4$.

214. Orbit 214 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 7 & 15 & -13 \\ 18 & -18 & -18 & 10 \\ -8 & 0 & 0 & 20 \\ -33 & -11 & 11 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -3 & -7 & 5 \\ -8 & 8 & 8 & -4 \\ 4 & 0 & 0 & -8 \\ 15 & 5 & -5 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

215. Orbit 215 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -14 & -33 & -15 & 12 \\ 29 & -36 & 11 & 24 \\ -4 & 4 & 4 & -12 \\ 3 & 15 & 8 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 6 & 15 & 7 & -6 \\ -13 & 16 & -5 & -10 \\ 2 & -2 & -2 & 6 \\ -1 & -7 & -4 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

216. Orbit 216 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -21 & -21 & -15 & 23 \\ 33 & -25 & -11 & 17 \\ -4 & -18 & 18 & -12 \\ 0 & 0 & 0 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 9 & 9 & 7 & -11 \\ -15 & 11 & 5 & -7 \\ 2 & 8 & -8 & 6 \\ 0 & 0 & 0 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

217. Orbit 217 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 3 & 2 & -3 \\ 2 & 10 & 3 & -3 \\ 0 & 2 & 4 & -2 \\ -4 & -3 & 1 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 10 & -5 & -6 & 3 \\ -4 & -22 & -7 & 9 \\ 2 & -4 & -10 & 8 \\ 10 & 7 & -3 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

218. Orbit 218 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -17 & -29 & -22 & -10 \\ 37 & -7 & 29 & -37 \\ 14 & -7 & -18 & -55 \\ 24 & 7 & 11 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 7 & 13 & 10 & 4 \\ -17 & 3 & -13 & 17 \\ -6 & 3 & 8 & 25 \\ -10 & -3 & -5 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

219. Orbit 219 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 18 & -18 & -24 \\ 48 & 22 & 29 & 17 \\ -26 & 29 & 25 & 6 \\ -4 & -11 & 0 & 51 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -8 & 8 & 10 \\ -22 & -10 & -13 & -7 \\ 12 & -13 & -11 & -2 \\ 2 & 5 & 0 & -23 \end{pmatrix}$$

and $rank(A) = 4$.

220. Orbit 220 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 0 & 7 & 5 \\ 0 & 11 & 15 & -12 \\ 7 & 15 & 7 & 13 \\ -11 & -18 & 15 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 0 & -3 & -3 \\ 0 & -5 & -7 & 6 \\ -3 & -7 & -3 & -5 \\ 5 & 8 & -7 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

221. Orbit 221 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -7 & -11 & -6 \\ 22 & -18 & 11 & -23 \\ 21 & 22 & 25 & 2 \\ -11 & 11 & -11 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 3 & 5 & 2 \\ -10 & 8 & -5 & 11 \\ -9 & -10 & -11 & 0 \\ 5 & -5 & 5 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

222. Orbit 222 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 18 & -11 & 1 \\ -7 & 7 & 7 & -1 \\ -26 & -3 & 0 & 13 \\ 3 & -14 & 4 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -8 & 5 & -1 \\ 3 & -3 & -3 & 1 \\ 12 & 1 & 0 & -5 \\ -1 & 6 & -2 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

223. Orbit 223 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -22 & 36 & 0 & -6 \\ 4 & 40 & -18 & -12 \\ -19 & -11 & 25 & -5 \\ 15 & -7 & -7 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 10 & -16 & 0 & 2 \\ -2 & -18 & 8 & 6 \\ 9 & 5 & -11 & 3 \\ -7 & 3 & 3 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

224. Orbit 224 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 22 & -18 & -11 & -57 \\ 36 & -11 & -7 & 46 \\ 22 & 22 & 0 & 64 \\ -30 & -1 & 4 & 91 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -10 & 8 & 5 & 25 \\ -16 & 5 & 3 & -20 \\ -10 & -10 & 0 & -28 \\ 14 & 1 & -2 & -41 \end{pmatrix}$$

and $rank(A) = 4$.

225. Orbit 225 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -4 & -4 & -18 & 12 \\ -5 & -1 & 13 & 19 \\ 13 & 11 & -1 & 7 \\ -8 & -4 & 6 & 36 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 10 & 10 & 40 & -30 \\ 9 & 1 & -29 & -39 \\ -27 & -25 & 3 & -13 \\ 16 & 8 & -14 & -80 \end{pmatrix}$$

and $rank(A) = 4$.

226. Orbit 226 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -44 & -29 & -54 & -3 \\ 7 & -29 & 7 & -59 \\ -12 & 7 & -11 & 42 \\ 39 & 7 & 22 & 134 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 20 & 13 & 24 & 1 \\ -3 & 13 & -3 & 27 \\ 6 & -3 & 5 & -18 \\ -17 & -3 & -10 & -60 \end{pmatrix}$$

and $rank(A) = 4$.

227. Orbit 227 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -25 & 3 & 3 & 13 \\ -11 & -12 & 1 & -2 \\ 17 & -21 & -8 & -6 \\ -3 & 6 & -10 & -21 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 11 & -1 & -1 & -7 \\ 5 & 6 & -1 & 2 \\ -7 & 9 & 4 & 4 \\ 1 & -2 & 4 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

228. Orbit 228 has incidence 20 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -33 & -18 & 7 & -14 \\ 18 & -18 & 18 & 10 \\ -1 & 26 & -14 & -5 \\ 14 & 4 & -3 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 15 & 8 & -3 & 6 \\ -8 & 8 & -8 & -4 \\ 1 & -12 & 6 & 3 \\ -6 & -2 & 1 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

229. Orbit 229 has incidence 19 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{124}\begin{pmatrix} -171 & -57 & -125 & 31 \\ 46 & 1 & -13 & -52 \\ -89 & -10 & 101 & 6 \\ -34 & 46 & -35 & 47 \end{pmatrix} + \frac{\sqrt{5}}{124}\begin{pmatrix} 75 & 25 & 57 & -31 \\ -18 & 5 & -3 & 50 \\ 51 & 12 & -53 & 30 \\ 16 & -18 & 11 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

230. Orbit 230 has incidence 19 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{76}\begin{pmatrix} 23 & 101 & -23 & 19 \\ -46 & 53 & -41 & -40 \\ -67 & -2 & 37 & 8 \\ -62 & 46 & -9 & 103 \end{pmatrix} + \frac{\sqrt{5}}{76}\begin{pmatrix} -11 & -45 & 11 & -19 \\ 22 & -27 & 13 & 34 \\ 37 & -4 & -21 & 16 \\ 28 & -22 & 1 & -41 \end{pmatrix}$$

and $rank(A) = 4$.

231. Orbit 231 has incidence 19 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44}\begin{pmatrix} -38 & -19 & 51 & -8 \\ 19 & 25 & -12 & -4 \\ 27 & 12 & 7 & 22 \\ -6 & -6 & 6 & -20 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} 18 & 9 & -23 & -2 \\ -9 & -13 & 8 & 10 \\ -7 & -8 & -1 & 0 \\ 4 & 4 & -4 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

232. Orbit 232 has incidence 19 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -11 & -14 & 26 & 1 \\ 11 & 25 & 25 & -19 \\ 39 & -21 & -14 & 10 \\ 3 & 4 & 15 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 5 & 6 & -12 & -1 \\ -5 & -11 & -11 & 9 \\ -17 & 9 & 6 & -4 \\ -1 & -2 & -7 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

233. Orbit 233 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -2 & -11 & 0 & 1 \\ -1 & -12 & -6 & -3 \\ -2 & -4 & 7 & 1 \\ -3 & -3 & -7 & 1 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & 25 & 0 & -5 \\ 3 & 28 & 12 & 11 \\ 6 & 10 & -17 & 3 \\ 7 & 7 & 15 & -1 \end{pmatrix}$$

and $rank(A) = 4$.

234. Orbit 234 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & 18 & 29 & 16 \\ -18 & 18 & -18 & 24 \\ 21 & 18 & 0 & 9 \\ 0 & 18 & 11 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & -8 & -13 & -8 \\ 8 & -8 & 8 & -10 \\ -9 & -8 & 0 & -3 \\ 0 & -8 & -5 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

235. Orbit 235 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 47 & 0 & 18 & 1 \\ -18 & -7 & 3 & -38 \\ 7 & 4 & 14 & -5 \\ 0 & -11 & 15 & 26 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -21 & 0 & -8 & -1 \\ 8 & 3 & -1 & 18 \\ -3 & -2 & -6 & 3 \\ 0 & 5 & -7 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

236. Orbit 236 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -54 & -47 & 0 & -13 \\ 65 & -76 & 0 & -41 \\ 39 & 29 & 0 & 16 \\ 0 & 0 & 22 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 24 & 21 & 0 & 5 \\ -29 & 34 & 0 & 19 \\ -17 & -13 & 0 & -6 \\ 0 & 0 & -10 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

237. Orbit 237 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -7 & 7 & 1 & 3 \\ 3 & 1 & -6 & 0 \\ 2 & 1 & 5 & -4 \\ -8 & -7 & -8 & -11 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 3 & -3 & -1 & -3 \\ -1 & -1 & 2 & 2 \\ 0 & -1 & -3 & 4 \\ 4 & 3 & 2 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

238. Orbit 238 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -40 & 18 & 48 \\ 18 & -61 & 0 & 13 \\ 10 & -28 & -29 & -5 \\ -4 & -7 & 11 & -94 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 18 & -8 & -22 \\ -8 & 27 & 0 & -5 \\ -4 & 12 & 13 & 3 \\ 2 & 3 & -5 & 42 \end{pmatrix}$$

and $rank(A) = 4$.

239. Orbit 239 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -40 & 0 & -15 & -17 \\ 15 & 25 & 26 & 6 \\ 25 & 15 & -22 & 10 \\ 0 & -18 & -3 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 18 & 0 & 7 & 7 \\ -7 & -11 & -12 & -2 \\ -11 & -7 & 10 & -4 \\ 0 & 8 & 1 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

240. Orbit 240 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & -4 & -7 & 8 \\ -11 & -4 & -7 & 6 \\ 3 & -4 & -7 & -16 \\ 3 & 18 & -7 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & 2 & 3 & -4 \\ 5 & 2 & 3 & -2 \\ -1 & 2 & 3 & 8 \\ -1 & -8 & 3 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

241. Orbit 241 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 11 & -4 & -14 \\ -11 & 0 & 18 & -1 \\ -12 & 4 & -4 & 10 \\ 14 & -7 & -10 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -5 & 2 & 6 \\ 5 & 0 & -8 & 1 \\ 6 & -2 & 2 & -4 \\ -6 & 3 & 4 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

242. Orbit 242 has incidence 19 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 14 & 26 & 1 \\ 0 & 7 & 4 & 3 \\ 10 & 18 & 4 & -12 \\ -15 & -11 & 4 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -1 & -6 & -12 & -1 \\ 0 & -3 & -2 & -1 \\ -4 & -8 & -2 & 6 \\ 7 & 5 & -2 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

243. Orbit 243 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 5 & 0 & 1 \\ -1 & 4 & -2 & -1 \\ 2 & 2 & -3 & 1 \\ 1 & 3 & -1 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & -11 & 0 & -5 \\ 3 & -8 & 4 & 5 \\ -2 & -4 & 5 & 3 \\ -1 & -7 & 1 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

244. Orbit 244 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -5 & 7 & 0 & -4 \\ -9 & 9 & -2 & 0 \\ -2 & 6 & 1 & 1 \\ 2 & 0 & -7 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 11 & -15 & 0 & 6 \\ 21 & -19 & 4 & 4 \\ 6 & -12 & -3 & 3 \\ -4 & 0 & 15 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

245. Orbit 245 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -3 & 7 & 0 & 0 \\ -7 & 13 & -1 & -5 \\ -8 & 7 & -4 & -9 \\ 4 & 7 & -3 & -6 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & -3 & 0 & -2 \\ 3 & -5 & 1 & 5 \\ 4 & -3 & 2 & 7 \\ -2 & -3 & 1 & 2 \end{pmatrix}$$

and $rank(A) = 4$.

246. Orbit 246 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 2 & 2 & 6 \\ -3 & -2 & 2 & -5 \\ 3 & 4 & -5 & -2 \\ 4 & -2 & 1 & 1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & -4 & -4 & -16 \\ 7 & 4 & -6 & 15 \\ -5 & -10 & 9 & 10 \\ -8 & 4 & -3 & -1 \end{pmatrix}$$

and $rank(A) = 4$.

247. Orbit 247 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & 29 & -1 & -11 \\ -11 & 32 & 15 & 4 \\ -4 & 14 & 7 & 15 \\ 0 & 11 & 7 & 40 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & -13 & 1 & 3 \\ 5 & -14 & -7 & 0 \\ 2 & -6 & -3 & -5 \\ 0 & -5 & -3 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

248. Orbit 248 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -18 & 7 & 3 & -4 \\ 11 & 18 & 1 & 4 \\ -8 & 0 & -14 & 4 \\ 7 & -11 & 4 & -8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 8 & -3 & -1 & 0 \\ -5 & -8 & -1 & 0 \\ 4 & 0 & 6 & 0 \\ -3 & 5 & -2 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

249. Orbit 249 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -11 & 3 & -11 & -1 \\ 4 & 4 & 4 & -6 \\ -9 & -7 & -15 & 11 \\ 14 & 0 & 0 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 5 & -1 & 5 & -1 \\ -2 & -2 & -2 & 4 \\ 5 & 3 & 7 & -3 \\ -6 & 0 & 0 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

250. Orbit 250 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 87 & 29 & -29 & -35 \\ -22 & -58 & 0 & 6 \\ 17 & 47 & 11 & -13 \\ -40 & 76 & -18 & 54 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -39 & -13 & 13 & 15 \\ 10 & 26 & 0 & -2 \\ -7 & -21 & -5 & 7 \\ 18 & -34 & 8 & -24 \end{pmatrix}$$

and $rank(A) = 4$.

251. Orbit 251 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -14 & -25 & -7 & 36 \\ 14 & -11 & 43 & -28 \\ 6 & 11 & -51 & -22 \\ 22 & -11 & -7 & -104 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 6 & 11 & 3 & -18 \\ -6 & 5 & -19 & 14 \\ -2 & -5 & 23 & 12 \\ -10 & 5 & 3 & 46 \end{pmatrix}$$

and $rank(A) = 4$.

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252. Orbit 252 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & 0 & 25 & -2 \\ -11 & 18 & -7 & -16 \\ 32 & 11 & 58 & -9 \\ 0 & -29 & -18 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & 0 & -11 & 0 \\ 5 & -8 & 3 & 8 \\ -14 & -5 & -26 & 5 \\ 0 & 13 & 8 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

253. Orbit 253 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & 2 & 2 & -2 \\ 2 & 3 & 8 & -1 \\ -3 & -5 & 2 & 0 \\ 5 & 0 & -2 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -4 & -4 & -4 & 0 \\ -6 & -7 & -18 & 7 \\ 7 & 11 & -4 & 4 \\ -11 & 0 & 4 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

254. Orbit 254 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 25 & 0 & -13 \\ -39 & -18 & 7 & 6 \\ 0 & -7 & 18 & -5 \\ -15 & 36 & 11 & 48 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -11 & 0 & 5 \\ 17 & 8 & -3 & -2 \\ 0 & 3 & -8 & 3 \\ 7 & -16 & -5 & -22 \end{pmatrix}$$

and $rank(A) = 4$.

255. Orbit 255 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -36 & -47 & -29 & 12 \\ -51 & 18 & 0 & -41 \\ -12 & -29 & 11 & 34 \\ 83 & 0 & -18 & 101 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & 21 & 13 & -6 \\ 23 & -8 & 0 & 19 \\ 6 & 13 & -5 & -14 \\ -37 & 0 & 8 & -45 \end{pmatrix}$$

and $rank(A) = 4$.

256. Orbit 256 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & 0 & -2 & 1 \\ 2 & -1 & 0 & -1 \\ 5 & -3 & 1 & 1 \\ -4 & -4 & -3 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & 0 & 4 & -5 \\ -4 & 3 & 0 & 5 \\ -9 & 7 & -1 & 3 \\ 8 & 10 & 5 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

257. Orbit 257 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & 8 & 3 & -6 \\ -3 & 7 & -3 & 3 \\ -2 & 5 & 7 & 6 \\ -2 & -6 & -1 & 7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & -18 & -7 & 10 \\ 7 & -15 & 7 & -3 \\ 6 & -11 & -15 & -8 \\ 4 & 14 & 1 & -17 \end{pmatrix}$$

and $rank(A) = 4$.

258. Orbit 258 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -7 & -29 & -13 \\ -7 & -58 & 11 & -34 \\ 21 & 11 & 18 & -16 \\ 7 & -18 & 0 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 3 & 13 & 5 \\ 3 & 26 & -5 & 16 \\ -9 & -5 & -8 & 8 \\ -3 & 8 & 0 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

259. Orbit 259 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -21 & -40 & -14 & 21 \\ 25 & -47 & 25 & 1 \\ 24 & -36 & 7 & -15 \\ -14 & 7 & 4 & -31 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 9 & 18 & 6 & -11 \\ -11 & 21 & -11 & 1 \\ -10 & 16 & -3 & 9 \\ 6 & -3 & -2 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

260. Orbit 260 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44}\begin{pmatrix} -17 & 9 & 0 & -6 \\ -18 & 1 & 9 & -12 \\ -10 & 10 & -8 & 4 \\ -9 & 0 & 35 & 8 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} 7 & -5 & 0 & -4 \\ 10 & -3 & -5 & 14 \\ 8 & -8 & 2 & 10 \\ 5 & 0 & -17 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

261. Orbit 261 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & 4 & 0 & 4 \\ -1 & 0 & -2 & -1 \\ -1 & 0 & 1 & -2 \\ 0 & -2 & -1 & -11 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 0 & -8 & 0 & -12 \\ 3 & 0 & 4 & 5 \\ 5 & 0 & -3 & 8 \\ 2 & 6 & 1 & 25 \end{pmatrix}$$

and $rank(A) = 4$.

262. Orbit 262 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & -22 & 0 & -6 \\ 7 & 0 & -11 & -12 \\ 10 & 0 & 7 & -5 \\ -3 & -14 & 4 & -43 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & 10 & 0 & 2 \\ -3 & 0 & 5 & 6 \\ -4 & 0 & -3 & 3 \\ 1 & 6 & -2 & 19 \end{pmatrix}$$

and $rank(A) = 4$.

263. Orbit 263 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & 47 & 22 & 9 \\ -11 & -47 & -11 & 53 \\ -44 & 11 & 65 & -20 \\ -7 & -47 & 76 & 138 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & -21 & -10 & -5 \\ 5 & 21 & 5 & -23 \\ 20 & -5 & -29 & 10 \\ 3 & 21 & -34 & -62 \end{pmatrix}$$

and $rank(A) = 4$.

264. Orbit 264 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & -11 & 18 & -6 \\ 36 & -25 & -65 & 24 \\ 3 & 33 & 33 & -13 \\ -40 & -11 & -36 & 123 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & 5 & -8 & 2 \\ -16 & 11 & 29 & -10 \\ -1 & -15 & -15 & 7 \\ 18 & 5 & 16 & -55 \end{pmatrix}$$

and $rank(A) = 4$.

265. Orbit 265 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & 0 & 18 & -5 \\ -4 & 8 & -7 & 1 \\ 13 & 8 & 19 & 0 \\ -8 & 0 & 8 & -8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 0 & -8 & 1 \\ 2 & -4 & 3 & 1 \\ -5 & -4 & -9 & 2 \\ 4 & 0 & -4 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

266. Orbit 266 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 22 & 0 & 36 & -6 \\ -47 & -43 & -36 & 2 \\ 43 & 40 & 80 & -27 \\ -4 & -11 & 22 & 101 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -10 & 0 & -16 & 2 \\ 21 & 19 & 16 & 0 \\ -19 & -18 & -36 & 13 \\ 2 & 5 & -10 & -45 \end{pmatrix}$$

and $rank(A) = 4$.

267. Orbit 267 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & -29 & -36 & -8 \\ 3 & -29 & 14 & 8 \\ -63 & -29 & 0 & 14 \\ 25 & -29 & -14 & -76 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 13 & 16 & 2 \\ -1 & 13 & -6 & -2 \\ 29 & 13 & 0 & -4 \\ -11 & 13 & 6 & 34 \end{pmatrix}$$

and $rank(A) = 4$.

268. Orbit 268 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}
\begin{pmatrix}
4 & 0 & 21 & 5 \\
0 & -7 & -4 & -5 \\
7 & -18 & -22 & -5 \\
11 & 11 & -11 & -47
\end{pmatrix}
+ \frac{\sqrt{5}}{4}
\begin{pmatrix}
-2 & 0 & -9 & -3 \\
0 & 3 & 2 & 3 \\
-3 & 8 & 10 & 3 \\
-5 & -5 & 5 & 21
\end{pmatrix}
$$

and $rank(A) = 4$.

269. Orbit 269 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}
\begin{pmatrix}
-18 & 18 & -18 & -24 \\
29 & 11 & 18 & 6 \\
3 & 22 & -32 & -9 \\
-22 & -29 & 4 & -47
\end{pmatrix}
+ \frac{\sqrt{5}}{4}
\begin{pmatrix}
8 & -8 & 8 & 10 \\
-13 & -5 & -8 & -2 \\
-1 & -10 & 14 & 5 \\
10 & 13 & -2 & 21
\end{pmatrix}
$$

and $rank(A) = 4$.

270. Orbit 270 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}
\begin{pmatrix}
-11 & -7 & -58 & -2 \\
-7 & -40 & 22 & -27 \\
14 & 0 & 0 & -16 \\
18 & -47 & 0 & 29
\end{pmatrix}
+ \frac{\sqrt{5}}{4}
\begin{pmatrix}
5 & 3 & 26 & 0 \\
3 & 18 & -10 & 13 \\
-6 & 0 & 0 & 8 \\
-8 & 21 & 0 & -13
\end{pmatrix}
$$

and $rank(A) = 4$.

271. Orbit 271 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8}
\begin{pmatrix}
33 & 25 & -11 & -1 \\
-26 & 7 & -25 & 12 \\
13 & -14 & 33 & 14 \\
-22 & -26 & -25 & -51
\end{pmatrix}
+ \frac{\sqrt{5}}{8}
\begin{pmatrix}
-15 & -11 & 5 & -1 \\
12 & -3 & 11 & -4 \\
-5 & 6 & -15 & -4 \\
10 & 12 & 11 & 23
\end{pmatrix}
$$

and $rank(A) = 4$.

272. Orbit 272 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -4 & -4 & 4 & 0 \\ -1 & 3 & 4 & 4 \\ 1 & 0 & -10 & -5 \\ 6 & -1 & -10 & -11 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 2 & 2 & -2 & -2 \\ 1 & -1 & -2 & 0 \\ 1 & 0 & 4 & 5 \\ -2 & 1 & 4 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

273. Orbit 273 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & -3 & -3 & -3 \\ -1 & 2 & -3 & 6 \\ 0 & 0 & 7 & -1 \\ -4 & 1 & -7 & 4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & 7 & 7 & 3 \\ 3 & -4 & 7 & -10 \\ 2 & 0 & -15 & 7 \\ 8 & -3 & 15 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

274. Orbit 274 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & 25 & 18 & -6 \\ -22 & 50 & 22 & 6 \\ 25 & 4 & 7 & 6 \\ -18 & -15 & -25 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & -11 & -8 & 2 \\ 10 & -22 & -10 & -2 \\ -11 & -2 & -3 & -2 \\ 8 & 7 & 11 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

275. Orbit 275 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 7 & 2 & -1 \\ -1 & 3 & 1 & 1 \\ 1 & 4 & 4 & 1 \\ -2 & -2 & -1 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -15 & -4 & -1 \\ 3 & -5 & -3 & 1 \\ -1 & -10 & -8 & 1 \\ 4 & 6 & 1 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

276. Orbit 276 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & -15 & -11 & -6 \\ -7 & 4 & 0 & -5 \\ 3 & 0 & 18 & -1 \\ -14 & -3 & -7 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 2 & 7 & 5 & 2 \\ 3 & -2 & 0 & 3 \\ -1 & 0 & -8 & 1 \\ 6 & 1 & 3 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

277. Orbit 277 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 2 & 1 & 1 \\ -2 & 0 & -1 & -3 \\ 3 & 5 & 2 & -2 \\ 3 & -1 & 0 & -8 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -4 & -3 & -5 \\ 4 & 0 & 1 & 9 \\ -5 & -13 & -2 & 8 \\ -7 & 3 & -2 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

278. Orbit 278 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 18 & -11 & 1 \\ -14 & 8 & 0 & -16 \\ 0 & 15 & 18 & -5 \\ 14 & 3 & -7 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -8 & 5 & -1 \\ 6 & -4 & 0 & 8 \\ 0 & -7 & -8 & 3 \\ -6 & -1 & 3 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

279. Orbit 279 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 31 & -19 & 57 & 29 \\ 13 & 0 & -19 & -30 \\ 14 & -32 & -83 & 29 \\ 32 & -51 & -7 & -64 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -17 & 9 & -27 & -23 \\ -5 & 0 & 9 & 20 \\ -2 & 14 & 37 & -1 \\ -14 & 23 & 1 & 28 \end{pmatrix}$$

and $rank(A) = 4$.

280. Orbit 280 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & -18 & 0 & 5 \\ 11 & 18 & -7 & 6 \\ 10 & 4 & 18 & 2 \\ 0 & -18 & 11 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & 8 & 0 & -3 \\ -5 & -8 & 3 & -2 \\ -4 & -2 & -8 & 0 \\ 0 & 8 & -5 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

281. Orbit 281 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -15 & -11 & 4 & 2 \\ 10 & 7 & -11 & 12 \\ -2 & 0 & 0 & -18 \\ -19 & -4 & -7 & -44 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 7 & 5 & -2 & -2 \\ -4 & -3 & 5 & -4 \\ 2 & 0 & 0 & 10 \\ 9 & 2 & 3 & 20 \end{pmatrix}$$

and $rank(A) = 4$.

282. Orbit 282 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 2 & 8 & 2 \\ 0 & -9 & -6 & -3 \\ 16 & 6 & 3 & 1 \\ 2 & -3 & -5 & 6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 10 & -4 & -18 & -8 \\ -2 & 19 & 14 & 11 \\ -34 & -14 & -7 & 1 \\ -4 & 7 & 11 & -14 \end{pmatrix}$$

and $rank(A) = 4$.

283. Orbit 283 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -4 & -20 & 10 & 8 \\ 0 & -8 & 6 & -4 \\ -1 & 7 & -29 & 3 \\ 11 & -11 & -11 & -25 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 2 & 10 & -4 & -6 \\ 0 & 4 & -2 & 4 \\ 1 & -3 & 13 & 1 \\ -5 & 5 & 5 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

284. Orbit 284 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & -7 & -11 & 8 \\ 0 & 4 & -11 & -1 \\ -15 & -28 & 3 & 2 \\ -11 & 3 & -25 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & 3 & 5 & -4 \\ 0 & -2 & 5 & 1 \\ 7 & 12 & -1 & 0 \\ 5 & -1 & 11 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

285. Orbit 285 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 25 & -14 & 4 & 1 \\ -7 & 0 & -11 & -12 \\ -8 & -14 & 22 & -8 \\ -4 & 8 & 15 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -11 & 6 & -2 & -1 \\ 3 & 0 & 5 & 6 \\ 4 & 6 & -10 & 4 \\ 2 & -4 & -7 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

286. Orbit 286 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -11 & -18 & -15 & 8 \\ 4 & 0 & 7 & -5 \\ 7 & -7 & -15 & -1 \\ 0 & -11 & 1 & -32 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 5 & 8 & 7 & -4 \\ -2 & 0 & -3 & 3 \\ -3 & 3 & 7 & 1 \\ 0 & 5 & -1 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

287. Orbit 287 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & -11 & 18 & -6 \\ -18 & 7 & -11 & 6 \\ 36 & 0 & 0 & 6 \\ 3 & 10 & 7 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 5 & -8 & 2 \\ 8 & -3 & 5 & -2 \\ -16 & 0 & 0 & -2 \\ -1 & -4 & -3 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

288. Orbit 288 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 3 & -1 & -2 \\ 0 & 9 & 0 & -1 \\ -3 & 3 & 1 & 3 \\ 1 & -1 & 4 & -2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & -7 & 3 & 2 \\ 0 & -21 & 2 & 7 \\ 7 & -7 & -1 & -3 \\ -3 & 1 & -8 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

289. Orbit 289 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -22 & -11 & -10 \\ 18 & -4 & -4 & 10 \\ 14 & 11 & 7 & -12 \\ 3 & -1 & 14 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 10 & 5 & 4 \\ -8 & 2 & 2 & -4 \\ -6 & -5 & -3 & 6 \\ -1 & 1 & -6 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

290. Orbit 290 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -15 & 0 & -11 & -24 \\ 11 & 0 & 18 & -23 \\ 10 & 22 & 7 & -5 \\ -22 & 0 & 0 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 7 & 0 & 5 & 10 \\ -5 & 0 & -8 & 11 \\ -4 & -10 & -3 & 3 \\ 10 & 0 & 0 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

291. Orbit 291 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 33 & -7 & 12 \\ 7 & 22 & 11 & -12 \\ -4 & 4 & 4 & -12 \\ -11 & 7 & 8 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -15 & 3 & -6 \\ -3 & -10 & -5 & 6 \\ 2 & -2 & -2 & 6 \\ 5 & -3 & -4 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

292. Orbit 292 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 11 & 7 & -8 & 6 \\ 4 & -11 & 0 & 5 \\ -1 & -10 & -14 & 1 \\ 6 & 8 & -6 & -14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -5 & -3 & 4 & -4 \\ -2 & 5 & 0 & -1 \\ 1 & 4 & 6 & 1 \\ -2 & -4 & 2 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

293. Orbit 293 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & -4 & 10 & 6 \\ -7 & 18 & 0 & -13 \\ -19 & -10 & 15 & -10 \\ 6 & -10 & 5 & -7 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & 2 & -4 & -4 \\ 3 & -8 & 0 & 7 \\ 9 & 4 & -7 & 6 \\ -2 & 4 & -3 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

294. Orbit 294 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -18 & 25 & 1 \\ 0 & -11 & 7 & -12 \\ -22 & 0 & 14 & 6 \\ 0 & -7 & 12 & -39 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 8 & -11 & -1 \\ 0 & 5 & -3 & 6 \\ 10 & 0 & -6 & -2 \\ 0 & 3 & -6 & 17 \end{pmatrix}$$

and $rank(A) = 4$.

295. Orbit 295 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 18 & -29 & -14 \\ 7 & 22 & -3 & 10 \\ 14 & 15 & -4 & -5 \\ 18 & 11 & -6 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -8 & 13 & 6 \\ -3 & -10 & 1 & -4 \\ -6 & -7 & 2 & 3 \\ -8 & -5 & 2 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

296. Orbit 296 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -8 & -18 & 11 & 1 \\ 11 & -36 & 4 & -1 \\ -15 & 15 & -7 & -1 \\ -4 & 11 & 8 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 4 & 8 & -5 & -1 \\ -5 & 16 & -2 & 1 \\ 7 & -7 & 3 & 1 \\ 2 & -5 & -4 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

297. Orbit 297 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -5 & 1 & -8 & 10 \\ 15 & -1 & -8 & -4 \\ 5 & 1 & -12 & -4 \\ 1 & 1 & 14 & -10 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 13 & -3 & 18 & -26 \\ -35 & 3 & 18 & 12 \\ -9 & -3 & 26 & 12 \\ -1 & -3 & -32 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

298. Orbit 298 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -29 & -11 & -4 & -6 \\ 1 & -4 & 0 & -19 \\ 21 & -7 & -7 & -1 \\ -7 & 0 & -25 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 13 & 5 & 2 & 2 \\ -1 & 2 & 0 & 9 \\ -9 & 3 & 3 & 1 \\ 3 & 0 & 11 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

299. Orbit 299 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 3 & 11 & -19 & 5 \\ -7 & 18 & -6 & -5 \\ 6 & 1 & 2 & -13 \\ 4 & 0 & -5 & -11 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -1 & -5 & 9 & -3 \\ 3 & -8 & 2 & 3 \\ -2 & -1 & 0 & 7 \\ -2 & 0 & 1 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

300. Orbit 300 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & 7 & -7 & 1 \\ -4 & 21 & -11 & 6 \\ 14 & -7 & 4 & 17 \\ -11 & 15 & -14 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & -3 & 3 & -1 \\ 2 & -9 & 5 & -2 \\ -6 & 3 & -2 & -7 \\ 5 & -7 & 6 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

301. Orbit 301 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 47 & 18 & 29 & -6 \\ -11 & 40 & 51 & -16 \\ -11 & 40 & 29 & 20 \\ -33 & -18 & 15 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -21 & -8 & -13 & 2 \\ 5 & -18 & -23 & 8 \\ 5 & -18 & -13 & -8 \\ 15 & 8 & -7 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

302. Orbit 302 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & 7 & -7 & -5 \\ -4 & 6 & -7 & 1 \\ -22 & -3 & 7 & 8 \\ 17 & -4 & 15 & 8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & -3 & 3 & 1 \\ 2 & -2 & 3 & 1 \\ 10 & 1 & -3 & -2 \\ -7 & 2 & -7 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

303. Orbit 303 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 11 & -36 & 1 \\ -7 & 4 & 0 & -5 \\ 25 & -7 & -36 & 2 \\ 0 & -14 & -14 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -5 & 16 & -1 \\ 3 & -2 & 0 & 3 \\ -11 & 3 & 16 & 0 \\ 0 & 6 & 6 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

304. Orbit 304 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -15 & 0 & -83 & 12 \\ 29 & 69 & -54 & 6 \\ 7 & -43 & -65 & -23 \\ 7 & -18 & 8 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 7 & 0 & 37 & -6 \\ -13 & -31 & 24 & -2 \\ -3 & 19 & 29 & 11 \\ -3 & 8 & -4 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

305. Orbit 305 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & 0 & -19 & -10 \\ -3 & 7 & 8 & -12 \\ -4 & 4 & -4 & -4 \\ 0 & 11 & 1 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 0 & 9 & 4 \\ 1 & -3 & -4 & 6 \\ 2 & -2 & 2 & 2 \\ 0 & -5 & -1 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

306. Orbit 306 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 3 & 7 & -14 & -2 \\ -7 & 4 & 8 & -13 \\ -8 & 8 & 0 & -2 \\ 2 & -3 & 2 & 15 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -1 & -3 & 6 & 0 \\ 3 & -2 & -4 & 7 \\ 4 & -4 & 0 & 2 \\ 0 & 1 & -2 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

307. Orbit 307 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & -11 & -8 & -21 \\ -7 & 18 & 22 & 3 \\ 3 & 15 & 0 & 10 \\ 14 & -14 & -6 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & 5 & 4 & 9 \\ 3 & -8 & -10 & -1 \\ -1 & -7 & 0 & -4 \\ -6 & 6 & 2 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

308. Orbit 308 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -15 & 5 & -5 & -1 \\ 30 & 9 & 8 & 7 \\ -16 & 16 & 17 & 1 \\ 1 & 2 & 0 & 1 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 33 & -11 & 11 & -1 \\ -70 & -21 & -18 & -13 \\ 38 & -36 & -37 & 1 \\ -1 & -4 & 0 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

309. Orbit 309 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 43 & 0 & -19 & -10 \\ -10 & -11 & 8 & -23 \\ -22 & -7 & -4 & -11 \\ -11 & 40 & 1 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -19 & 0 & 9 & 4 \\ 4 & 5 & -4 & 11 \\ 10 & 3 & 2 & 5 \\ 5 & -18 & -1 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

310. Orbit 310 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & -21 & 4 & -17 \\ 7 & 4 & 0 & 17 \\ -4 & -14 & -7 & 17 \\ -11 & -11 & -3 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & 9 & -2 & 7 \\ -3 & -2 & 0 & -7 \\ 2 & 6 & 3 & -7 \\ 5 & 5 & 1 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

311. Orbit 311 has incidence 19 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 17 & 22 & -4 & 1 \\ 0 & 0 & -22 & 20 \\ 16 & -6 & -21 & 1 \\ -1 & 8 & -17 & 26 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -7 & -10 & 2 & -1 \\ 0 & 0 & 10 & -8 \\ -6 & 2 & 9 & 1 \\ 1 & -4 & 7 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

312. Orbit 312 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -13 & -12 & -19 & 4 \\ 7 & 13 & -26 & -4 \\ -18 & -6 & 44 & -16 \\ -38 & 19 & -13 & 58 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 5 & 8 & 9 & -10 \\ -1 & -5 & 10 & 10 \\ 12 & 4 & -22 & 18 \\ 18 & -9 & 5 & -24 \end{pmatrix}$$

and $rank(A) = 4$.

313. Orbit 313 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 1 & -1 & -4 \\ 3 & 7 & 7 & -1 \\ -6 & 2 & -1 & 1 \\ 3 & 4 & -1 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -3 & 1 & 6 \\ -7 & -15 & -15 & 5 \\ 16 & -6 & 1 & 1 \\ -5 & -10 & 1 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

314. Orbit 314 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -7 & 21 & -1 & -3 \\ -11 & 19 & 3 & -1 \\ -4 & 4 & -4 & 0 \\ 8 & 2 & 0 & -14 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 3 & -9 & 1 & -1 \\ 5 & -9 & -1 & 3 \\ 2 & -2 & 2 & 2 \\ -4 & -2 & 0 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

315. Orbit 315 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & 18 & -8 & -1 \\ -4 & 8 & 7 & 1 \\ -8 & 1 & -4 & 1 \\ 11 & 5 & 3 & -11 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & -8 & 4 & -1 \\ 2 & -4 & -3 & 1 \\ 4 & -1 & 2 & 1 \\ -5 & -3 & -1 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

316. Orbit 316 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 0 & 7 & 39 & 4 \\ -38 & 70 & -19 & -23 \\ 26 & 13 & -6 & -17 \\ -26 & -14 & -26 & -90 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 0 & -1 & -15 & -10 \\ 18 & -32 & 9 & 19 \\ -10 & -5 & 4 & 15 \\ 10 & 2 & 10 & 38 \end{pmatrix}$$

and $rank(A) = 4$.

317. Orbit 317 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 1 & 3 & -3 \\ 2 & 5 & 2 & 3 \\ -2 & -2 & 1 & -3 \\ -1 & 0 & -2 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -7 & -1 & -7 & 3 \\ -4 & -11 & -6 & -3 \\ 6 & 4 & -3 & 11 \\ 3 & 0 & 4 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

318. Orbit 318 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 4 & 7 & 1 & 4 \\ -11 & 22 & 2 & 3 \\ -8 & 11 & -1 & 0 \\ -7 & -18 & 0 & -17 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -2 & -3 & 1 & -4 \\ 5 & -10 & 0 & 1 \\ 4 & -5 & 1 & 2 \\ 3 & 8 & 0 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

319. Orbit 319 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -16 & -14 & 14 & 4 \\ 19 & -4 & -7 & -4 \\ 5 & 5 & -4 & -4 \\ 10 & -7 & 11 & 0 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 8 & 6 & -6 & -4 \\ -9 & 2 & 3 & 4 \\ -1 & -3 & 2 & 4 \\ -4 & 3 & -5 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

320. Orbit 320 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -25 & 22 & 1 \\ -7 & -11 & -40 & 6 \\ 3 & -25 & 33 & -5 \\ -22 & 33 & 15 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 11 & -10 & -1 \\ 3 & 5 & 18 & -2 \\ -1 & 11 & -15 & 3 \\ 10 & -15 & -7 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

321. Orbit 321 has incidence 18 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -4 & 36 & 19 \\ 0 & -11 & 7 & -26 \\ 3 & 0 & -4 & -1 \\ 10 & -1 & 3 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 2 & -16 & -9 \\ 0 & 5 & -3 & 12 \\ -1 & 0 & 2 & 1 \\ -4 & 1 & -1 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

322. Orbit 322 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 3 & 0 & 3 \\ 14 & -11 & 7 & 2 \\ 13 & -3 & 10 & -4 \\ -3 & -11 & -3 & 19 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -1 & 0 & -3 \\ -6 & 5 & -3 & 0 \\ -5 & 1 & -4 & 4 \\ 1 & 5 & 1 & -9 \end{pmatrix}$$

and $rank(A) = 4$.

323. Orbit 323 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -18 & 3 & 0 & -5 \\ 7 & 4 & 0 & -13 \\ -13 & -7 & 8 & 14 \\ -14 & 0 & 0 & -14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 8 & -1 & 0 & 1 \\ -3 & -2 & 0 & 7 \\ 7 & 3 & -4 & -4 \\ 6 & 0 & 0 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

324. Orbit 324 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -8 & -1 & 3 \\ 7 & -16 & -15 & -8 \\ 16 & 3 & 11 & -12 \\ 5 & 5 & -5 & 15 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & 18 & 3 & -11 \\ -15 & 36 & 33 & 22 \\ -34 & -7 & -25 & 32 \\ -11 & -11 & 11 & -33 \end{pmatrix}$$

and $rank(A) = 4$.

325. Orbit 325 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 40 & 29 & -11 & -28 \\ -22 & -22 & 0 & 6 \\ -1 & 47 & 4 & -2 \\ -33 & 40 & -7 & 72 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & -13 & 5 & 12 \\ 10 & 10 & 0 & -2 \\ 1 & -21 & -2 & 2 \\ 15 & -18 & 3 & -32 \end{pmatrix}$$

and $rank(A) = 4$.

326. Orbit 326 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & 0 & 5 & 2 \\ 0 & 5 & -3 & -2 \\ 3 & -1 & 4 & -4 \\ 2 & -2 & -2 & 8 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & 0 & -11 & -8 \\ 0 & -11 & 7 & 8 \\ -5 & 1 & -8 & 14 \\ -4 & 4 & 4 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

327. Orbit 327 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 0 & -7 & 13 \\ 14 & 3 & 7 & -6 \\ 13 & -15 & -1 & -11 \\ -3 & -4 & 1 & -28 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & 0 & 3 & -7 \\ -6 & -1 & -3 & 4 \\ -5 & 7 & 1 & 7 \\ 1 & 2 & -1 & 12 \end{pmatrix}$$

and $rank(A) = 4$.

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328. Orbit 328 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -5 & 13 & -2 & -6 \\ -3 & 12 & 2 & 1 \\ 0 & 6 & 0 & 6 \\ 2 & -1 & -4 & 19 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 11 & -29 & 6 & 8 \\ 7 & -26 & -6 & 1 \\ 0 & -14 & 0 & -10 \\ -4 & 3 & 8 & -43 \end{pmatrix}$$

and $rank(A) = 4$.

329. Orbit 329 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -7 & -18 & 0 & -1 \\ 2 & -18 & -4 & 14 \\ -18 & 4 & 3 & 1 \\ -19 & 4 & -7 & -8 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 3 & 8 & 0 & -1 \\ 0 & 8 & 2 & -4 \\ 10 & -2 & -1 & 3 \\ 9 & -2 & 3 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

330. Orbit 330 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -5 & -3 & -7 & 9 \\ 2 & -1 & 3 & -4 \\ 1 & -2 & 1 & -6 \\ 0 & 4 & -1 & -23 \end{pmatrix} + \frac{\sqrt{5}}{40} \begin{pmatrix} 9 & 7 & 15 & -25 \\ -2 & 3 & -7 & 14 \\ 5 & 4 & -1 & 26 \\ -2 & -8 & 1 & 49 \end{pmatrix}$$

and $rank(A) = 4$.

331. Orbit 331 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 40 & 14 & 29 & 5 \\ 4 & -47 & 0 & 21 \\ -4 & -57 & -11 & -2 \\ 18 & 54 & -18 & 26 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & -6 & -13 & -3 \\ -2 & 21 & 0 & -9 \\ 2 & 25 & 5 & 2 \\ -8 & -24 & 8 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

332. Orbit 332 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{16} \begin{pmatrix} 0 & 10 & 3 & -1 \\ -3 & 19 & 5 & -3 \\ -9 & 8 & -11 & 4 \\ -4 & -7 & 11 & 14 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} 0 & -4 & -1 & -3 \\ 1 & -9 & -3 & 5 \\ 5 & -4 & 5 & 2 \\ 2 & 3 & -5 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

333. Orbit 333 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 22 & 7 & 27 \\ 11 & -11 & 69 & -5 \\ -44 & 29 & -76 & 31 \\ 7 & -18 & 0 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -10 & -3 & -13 \\ -5 & 5 & -31 & 3 \\ 20 & -13 & 34 & -13 \\ -3 & 8 & 0 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

334. Orbit 334 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 18 & -18 & -60 \\ -14 & 11 & 29 & -12 \\ 21 & 22 & 25 & 2 \\ -11 & -29 & 0 & 98 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -8 & 8 & 26 \\ 6 & -5 & -13 & 6 \\ -9 & -10 & -11 & 0 \\ 5 & 13 & 0 & -44 \end{pmatrix}$$

and $rank(A) = 4$.

335. Orbit 335 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -40 & 14 & 7 & -1 \\ 22 & 18 & -3 & -3 \\ -23 & -11 & -18 & 4 \\ 3 & -29 & 0 & -4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 18 & -6 & -3 & -1 \\ -10 & -8 & 1 & 3 \\ 11 & 5 & 8 & 0 \\ -1 & 13 & 0 & 2 \end{pmatrix}$$

and $rank(A) = 4$.

336. Orbit 336 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -3 & -3 & 7 & 7 \\ -4 & 5 & 0 & 3 \\ 2 & 8 & -5 & 1 \\ -1 & 0 & 8 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 7 & 7 & -15 & -19 \\ 10 & -11 & 0 & -3 \\ -2 & -18 & 11 & 3 \\ 3 & 0 & -18 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

337. Orbit 337 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44}\begin{pmatrix} 52 & 16 & 0 & 4 \\ -35 & 26 & -9 & -2 \\ 7 & 1 & 8 & -22 \\ -8 & -43 & -17 & -86 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} -24 & -4 & 0 & -12 \\ 17 & -12 & 5 & 6 \\ 1 & -3 & -2 & 22 \\ 2 & 19 & 7 & 38 \end{pmatrix}$$

and $rank(A) = 4$.

338. Orbit 338 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 3 & -4 & -7 & -12 \\ 5 & 22 & 18 & -3 \\ -19 & -7 & -8 & 8 \\ 3 & -11 & 11 & 41 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -1 & 2 & 3 & 4 \\ -3 & -10 & -8 & 3 \\ 9 & 3 & 4 & -2 \\ -1 & 5 & -5 & -19 \end{pmatrix}$$

and $rank(A) = 4$.

339. Orbit 339 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -11 & -7 & 28 & 14 \\ 29 & 7 & 15 & 5 \\ -16 & 15 & -32 & 15 \\ 10 & -7 & 11 & -8 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 5 & 3 & -12 & -8 \\ -13 & -3 & -7 & -1 \\ 8 & -7 & 14 & -5 \\ -4 & 3 & -5 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

340. Orbit 340 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 40 & -29 & -11 & 30 \\ 18 & -72 & -7 & -5 \\ -26 & -25 & -14 & -31 \\ -4 & 18 & -18 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & 13 & 5 & -14 \\ -8 & 32 & 3 & 3 \\ 12 & 11 & 6 & 15 \\ 2 & -8 & 8 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

341. Orbit 341 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -22 & 25 & 29 & 12 \\ -7 & -7 & -29 & 35 \\ 10 & 36 & -7 & -5 \\ 3 & -4 & -7 & -94 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 10 & -11 & -13 & -6 \\ 3 & 3 & 13 & -15 \\ -4 & -16 & 3 & 3 \\ -1 & 2 & 3 & 42 \end{pmatrix}$$

and $rank(A) = 4$.

342. Orbit 342 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -13 & 0 & 45 & 4 \\ 13 & -13 & -13 & 15 \\ 27 & 44 & -26 & -3 \\ 13 & -19 & 6 & -76 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 5 & 0 & -19 & -10 \\ -5 & 5 & 5 & 1 \\ -7 & -22 & 10 & 13 \\ -5 & 9 & -4 & 36 \end{pmatrix}$$

and $rank(A) = 4$.

343. Orbit 343 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 0 & 7 & -1 \\ 2 & -2 & -2 & -2 \\ 10 & 7 & 6 & 1 \\ 2 & -3 & 1 & -12 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & 0 & -15 & -1 \\ -4 & 4 & 4 & 8 \\ -20 & -17 & -14 & 3 \\ -4 & 7 & -3 & 28 \end{pmatrix}$$

and $rank(A) = 4$.

344. Orbit 344 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -3 & 4 & 5 & 2 \\ 1 & 1 & -5 & 1 \\ 0 & 3 & 1 & 0 \\ -2 & -4 & 1 & -13 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 7 & -8 & -11 & -8 \\ -3 & -3 & 11 & 1 \\ 2 & -7 & -3 & 4 \\ 6 & 10 & -3 & 29 \end{pmatrix}$$

and $rank(A) = 4$.

345. Orbit 345 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{12}\begin{pmatrix} -18 & 14 & 7 & 15 \\ 0 & -14 & 0 & -18 \\ -17 & 8 & -3 & -2 \\ 17 & 14 & 4 & 29 \end{pmatrix} + \frac{\sqrt{5}}{12}\begin{pmatrix} 8 & -6 & -3 & -9 \\ 0 & 6 & 0 & 10 \\ 9 & -4 & 1 & 4 \\ -7 & -6 & -2 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

346. Orbit 346 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -3 & 25 & 25 & -1 \\ -4 & 15 & 11 & 12 \\ 13 & 8 & -3 & 14 \\ 14 & -4 & -3 & -51 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 1 & -11 & -11 & -1 \\ 2 & -7 & -5 & -4 \\ -5 & -4 & 1 & -4 \\ -6 & 2 & 1 & 23 \end{pmatrix}$$

and $rank(A) = 4$.

347. Orbit 347 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -1 & 3 & -2 & 4 \\ 0 & -8 & 1 & 3 \\ -4 & 0 & -7 & -5 \\ 1 & 5 & 8 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 3 & -7 & 6 & -14 \\ 0 & 18 & -3 & -3 \\ 10 & 0 & 15 & 15 \\ -1 & -11 & -18 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

348. Orbit 348 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{76} \begin{pmatrix} 26 & 109 & 85 & 58 \\ -87 & 63 & 0 & 16 \\ 7 & -22 & -35 & -14 \\ -2 & -50 & 50 & 24 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} -14 & -47 & -37 & -40 \\ 41 & -31 & 0 & 6 \\ 5 & 6 & 13 & 28 \\ 4 & 24 & -24 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

349. Orbit 349 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & 3 & 4 & 1 \\ -1 & 3 & 0 & -2 \\ -5 & 3 & 3 & -3 \\ 2 & 3 & 1 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -6 & -7 & -10 & -7 \\ 3 & -7 & 0 & 8 \\ 13 & -7 & -7 & 11 \\ -4 & -7 & -3 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

350. Orbit 350 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & -7 & -4 & -1 \\ 7 & -18 & -14 & 1 \\ 2 & 8 & 15 & -7 \\ -11 & -11 & -3 & 39 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & 3 & 2 & -1 \\ -3 & 8 & 6 & 1 \\ 0 & -4 & -7 & 5 \\ 5 & 5 & 1 & -17 \end{pmatrix}$$

and $rank(A) = 4$.

351. Orbit 351 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -86 & 26 & 155 & 29 \\ 34 & 17 & -43 & -46 \\ 32 & 0 & 0 & 64 \\ 0 & 43 & 26 & 17 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 38 & -12 & -69 & -21 \\ -14 & -7 & 19 & 28 \\ -8 & 0 & 0 & -16 \\ 0 & -19 & -12 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

352. Orbit 352 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & -18 & 0 & -1 \\ 25 & -36 & 4 & -17 \\ 2 & 15 & 11 & -4 \\ 0 & 11 & 15 & -4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 8 & 0 & -1 \\ -11 & 16 & -2 & 9 \\ 0 & -7 & -5 & 4 \\ 0 & -5 & -7 & 2 \end{pmatrix}$$

and $rank(A) = 4$.

353. Orbit 353 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -3 & -11 & -11 & 15 \\ -15 & 7 & 15 & -11 \\ 20 & -6 & -6 & -6 \\ 18 & 10 & 4 & 32 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & 5 & 5 & -9 \\ 7 & -3 & -7 & 7 \\ -8 & 2 & 2 & 6 \\ -8 & -4 & -2 & -14 \end{pmatrix}$$

and $rank(A) = 4$.

354. Orbit 354 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -11 & -11 & -3 & -1 \\ 11 & -7 & 0 & -6 \\ 17 & 8 & -24 & -3 \\ 3 & -18 & 1 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 5 & 5 & 1 & -1 \\ -5 & 3 & 0 & 4 \\ -7 & -4 & 10 & 3 \\ -1 & 8 & -1 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

355. Orbit 355 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & -54 & 0 & 5 \\ 18 & -58 & -7 & -5 \\ -8 & -7 & 40 & -27 \\ -11 & 11 & 11 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & 24 & 0 & -3 \\ -8 & 26 & 3 & 3 \\ 4 & 3 & -18 & 13 \\ 5 & -5 & -5 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

356. Orbit 356 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -18 & 7 & -11 & 4 \\ 7 & 21 & 1 & -5 \\ -5 & -1 & 8 & -2 \\ 0 & 7 & 4 & 3 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 8 & -3 & 5 & -4 \\ -3 & -9 & -1 & 5 \\ 3 & 1 & -4 & 4 \\ 0 & -3 & -2 & -1 \end{pmatrix}$$

and $rank(A) = 4$.

357. Orbit 357 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -4 & -11 & 0 & -5 \\ 18 & 0 & 7 & 1 \\ 16 & 18 & -18 & -14 \\ -12 & 7 & 11 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 2 & 5 & 0 & 1 \\ -8 & 0 & -3 & 1 \\ -6 & -8 & 8 & 8 \\ 6 & -3 & -5 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

358. Orbit 358 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & 4 & -11 & 3 \\ -11 & -7 & -14 & -14 \\ -1 & -3 & 40 & -18 \\ -18 & 0 & -7 & 25 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & -2 & 5 & -3 \\ 5 & 3 & 6 & 8 \\ 1 & 1 & -18 & 10 \\ 8 & 0 & 3 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

359. Orbit 359 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & -3 & 3 & 1 \\ 1 & 2 & 0 & 1 \\ -1 & 0 & -5 & -4 \\ 1 & -1 & -2 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & 7 & -7 & -5 \\ -1 & -4 & 0 & 1 \\ 5 & 0 & 11 & 14 \\ -1 & 3 & 4 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

360. Orbit 360 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 0 & 95 & -26 & 3 \\ -26 & 104 & -25 & -21 \\ -53 & 1 & 35 & 13 \\ -43 & 26 & -34 & 51 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 0 & -43 & 12 & -9 \\ 12 & -48 & 9 & 19 \\ 27 & -3 & -17 & 5 \\ 19 & -12 & 14 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

361. Orbit 361 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & 22 & -25 & 12 \\ 18 & 33 & -36 & -45 \\ -22 & 15 & 4 & 31 \\ -11 & 40 & -7 & 130 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & -10 & 11 & -6 \\ -8 & -15 & 16 & 21 \\ 10 & -7 & -2 & -13 \\ 5 & -18 & 3 & -58 \end{pmatrix}$$

and $rank(A) = 4$.

362. Orbit 362 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 0 & -4 & 1 \\ -11 & -7 & -8 & 2 \\ 25 & -18 & -15 & -16 \\ 11 & 11 & -11 & -47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 0 & 2 & -1 \\ 5 & 3 & 4 & 0 \\ -11 & 8 & 7 & 8 \\ -5 & -5 & 5 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

363. Orbit 363 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 7 & -4 & -5 \\ -1 & 3 & 3 & -3 \\ 2 & 3 & 5 & 0 \\ 5 & 3 & -4 & 2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -15 & 10 & 7 \\ 1 & -7 & -7 & 11 \\ -4 & -7 & -11 & 4 \\ -11 & -7 & 8 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

364. Orbit 364 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & -11 & 4 & 16 \\ -4 & 0 & 1 & -13 \\ 6 & -10 & 5 & -11 \\ 11 & 7 & -6 & -4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 5 & -2 & -8 \\ 2 & 0 & -1 & 7 \\ -2 & 4 & -3 & 7 \\ -5 & -3 & 2 & 2 \end{pmatrix}$$

and $rank(A) = 4$.

365. Orbit 365 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -40 & 0 & -67 \\ 33 & -65 & 0 & -34 \\ 54 & 11 & 36 & 13 \\ -80 & 0 & 0 & 44 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 18 & 0 & 29 \\ -15 & 29 & 0 & 16 \\ -24 & -5 & -16 & -5 \\ 36 & 0 & 0 & -20 \end{pmatrix}$$

and $rank(A) = 4$.

366. Orbit 366 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & 33 & 7 & 14 \\ -11 & 40 & 15 & 4 \\ -37 & 15 & -7 & 11 \\ -18 & 0 & -7 & 25 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & -15 & -3 & -8 \\ 5 & -18 & -7 & 0 \\ 17 & -7 & 3 & -3 \\ 8 & 0 & 3 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

367. Orbit 367 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 18 & 94 & -89 \\ 36 & 94 & 58 & 6 \\ 3 & -43 & 22 & 16 \\ -76 & -69 & 58 & -181 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -8 & -42 & 39 \\ -16 & -42 & -26 & -2 \\ -1 & 19 & -10 & -6 \\ 34 & 31 & -26 & 81 \end{pmatrix}$$

and $rank(A) = 4$.

368. Orbit 368 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 11 & 11 & -3 & -9 \\ -4 & 18 & -10 & -6 \\ -1 & 15 & -13 & 11 \\ 0 & 0 & -6 & 14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -5 & -5 & 1 & 3 \\ 2 & -8 & 4 & 4 \\ 1 & -7 & 5 & -3 \\ 0 & 0 & 2 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

369. Orbit 369 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -22 & -54 & -3 & -21 \\ 11 & 18 & 7 & -30 \\ 21 & -32 & 8 & 17 \\ -4 & 4 & -10 & 134 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 10 & 24 & 1 & 9 \\ -5 & -8 & -3 & 14 \\ -9 & 14 & -4 & -7 \\ 2 & -2 & 4 & -60 \end{pmatrix}$$

and $rank(A) = 4$.

370. Orbit 370 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -22 & -25 & -21 & -10 \\ 11 & 7 & 14 & -12 \\ 21 & -14 & -3 & 10 \\ -4 & 4 & -10 & 98 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 10 & 11 & 9 & 4 \\ -5 & -3 & -6 & 6 \\ -9 & 6 & 1 & -4 \\ 2 & -2 & 4 & -44 \end{pmatrix}$$

and $rank(A) = 4$.

371. Orbit 371 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & 0 & -25 & -2 \\ 14 & 7 & 12 & 1 \\ 17 & 4 & -13 & -18 \\ -18 & -11 & -6 & -15 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 0 & 11 & 0 \\ -6 & -3 & -6 & 1 \\ -7 & -2 & 5 & 10 \\ 8 & 5 & 2 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

372. Orbit 372 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -18 & 7 & 3 & -4 \\ -7 & 29 & 1 & 5 \\ 3 & 7 & 6 & 8 \\ 0 & -7 & 4 & 19 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 8 & -3 & -1 & 0 \\ 3 & -13 & -1 & -1 \\ -1 & -3 & -2 & -2 \\ 0 & 3 & -2 & -9 \end{pmatrix}$$

and $rank(A) = 4$.

373. Orbit 373 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & -29 & 14 & 12 \\ 25 & -58 & 54 & -1 \\ 3 & 11 & 3 & 31 \\ 11 & -18 & -21 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & 13 & -6 & -6 \\ -11 & 26 & -24 & 1 \\ -1 & -5 & -1 & -13 \\ -5 & 8 & 9 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

374. Orbit 374 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12}\begin{pmatrix} 14 & 8 & 16 & 2 \\ -7 & -11 & -4 & -10 \\ 8 & 9 & -31 & -4 \\ 3 & 12 & -5 & -28 \end{pmatrix} + \frac{\sqrt{5}}{12}\begin{pmatrix} -6 & -4 & -8 & -2 \\ 3 & 5 & 2 & 6 \\ -2 & -5 & 13 & 4 \\ -1 & -6 & 1 & 12 \end{pmatrix}$$

and $rank(A) = 4$.

375. Orbit 375 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 2 & 2 & -5 & 3 \\ -2 & 2 & 2 & -3 \\ -6 & 2 & -5 & -3 \\ 5 & 2 & -1 & -9 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -1 & -1 & 2 & -2 \\ 1 & -1 & -1 & 2 \\ 3 & -1 & 2 & 2 \\ -2 & -1 & 0 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

376. Orbit 376 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & 7 & 8 & -8 \\ 0 & -25 & -15 & -6 \\ 2 & -18 & 4 & 0 \\ 7 & 0 & -11 & -18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & -3 & -4 & 2 \\ 0 & 11 & 7 & 4 \\ 0 & 8 & -2 & 2 \\ -3 & 0 & 5 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

377. Orbit 377 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 2 & 13 & 3 \\ -8 & 6 & -17 & 11 \\ 9 & 3 & 0 & -2 \\ -3 & -5 & 10 & 10 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 8 & -4 & -27 & -11 \\ 18 & -14 & 37 & -21 \\ -19 & -7 & 0 & 8 \\ 7 & 11 & -24 & -22 \end{pmatrix}$$

and $rank(A) = 4$.

378. Orbit 378 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 4 & 1 & 2 \\ 1 & 3 & -6 & -6 \\ 0 & 2 & 4 & -2 \\ -2 & -7 & -1 & 8 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -7 & -8 & -3 & -8 \\ -3 & -7 & 14 & 16 \\ 2 & -4 & -10 & 8 \\ 6 & 17 & 1 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

379. Orbit 379 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -10 & 2 & -4 & 14 \\ -4 & -9 & 5 & 4 \\ 2 & -25 & -8 & -11 \\ 4 & -2 & 1 & -11 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 4 & 0 & 2 & -8 \\ 2 & 5 & -3 & 0 \\ 0 & 11 & 4 & 7 \\ -2 & 2 & -1 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

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380. Orbit 380 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 36 & -65 & 19 \\ -11 & 51 & -14 & -12 \\ -22 & -32 & -11 & -45 \\ 7 & 11 & -10 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -16 & 29 & -9 \\ 5 & -23 & 6 & 6 \\ 10 & 14 & 5 & 21 \\ -3 & -5 & 4 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

381. Orbit 381 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -5 & 3 & 4 & 0 \\ -4 & 2 & 0 & 0 \\ 2 & 1 & 0 & 3 \\ 1 & 0 & 2 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 11 & -7 & -8 & -2 \\ 8 & -6 & 0 & 4 \\ -4 & -3 & 0 & -3 \\ -1 & 2 & -6 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

382. Orbit 382 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & -18 & 22 & 19 \\ 22 & -14 & 0 & -16 \\ -11 & -7 & 0 & -34 \\ 4 & -3 & -14 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & 8 & -10 & -9 \\ -10 & 6 & 0 & 8 \\ 5 & 3 & 0 & 16 \\ -2 & 1 & 6 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

383. Orbit 383 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -33 & 14 & 4 & 1 \\ 11 & 7 & -14 & -12 \\ 3 & 18 & 29 & 6 \\ -33 & -11 & 11 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 15 & -6 & -2 & -1 \\ -5 & -3 & 6 & 6 \\ -1 & -8 & -13 & -2 \\ 15 & 5 & -5 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

384. Orbit 384 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -11 & -7 & 8 & 6 \\ 4 & 25 & 14 & 5 \\ -23 & 12 & -14 & 1 \\ 6 & 8 & 8 & -14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 5 & 3 & -4 & -4 \\ -2 & -11 & -6 & -1 \\ 11 & -6 & 6 & 1 \\ -2 & -4 & -4 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

385. Orbit 385 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -25 & 18 & 29 & -6 \\ 55 & 11 & 11 & 39 \\ -19 & 22 & -4 & 13 \\ -11 & 7 & 0 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 11 & -8 & -13 & 2 \\ -25 & -5 & -5 & -17 \\ 9 & -10 & 2 & -5 \\ 5 & -3 & 0 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

386. Orbit 386 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & -26 & 14 & -1 \\ 23 & -1 & -29 & -17 \\ -1 & -25 & 4 & -10 \\ -7 & 0 & 11 & 18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & 12 & -6 & -1 \\ -11 & 1 & 13 & 9 \\ 1 & 11 & -2 & 6 \\ 3 & 0 & -5 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

387. Orbit 387 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -29 & 29 & 37 \\ -22 & -29 & -40 & -5 \\ 17 & 7 & 36 & 2 \\ 32 & 7 & 11 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 13 & -13 & -17 \\ 10 & 13 & 18 & 3 \\ -7 & -3 & -16 & 0 \\ -14 & -3 & -5 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

388. Orbit 388 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 17 & -18 & -8 & -23 \\ 17 & -35 & 1 & 31 \\ 17 & 9 & 0 & 22 \\ -35 & 42 & -25 & -16 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -7 & 10 & 2 & 3 \\ -7 & 17 & -3 & -5 \\ -7 & -5 & 0 & 0 \\ 17 & -16 & 9 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

389. Orbit 389 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & -42 & 8 & -12 \\ -4 & -21 & -11 & 12 \\ 3 & -10 & -7 & 12 \\ 7 & -11 & -10 & -14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & 18 & -4 & 4 \\ 2 & 9 & 5 & -4 \\ -1 & 4 & 3 & -4 \\ -3 & 5 & 4 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

390. Orbit 390 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -87 & -11 & -18 & -6 \\ -7 & -18 & 0 & -41 \\ 21 & 29 & -29 & 13 \\ -37 & 0 & 11 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 39 & 5 & 8 & 2 \\ 3 & 8 & 0 & 19 \\ -9 & -13 & 13 & -5 \\ 17 & 0 & -5 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

391. Orbit 391 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & 47 & -54 & -40 \\ -65 & 18 & -22 & 23 \\ 21 & 15 & 29 & -3 \\ 35 & -14 & -3 & 26 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & -21 & 24 & 16 \\ 29 & -8 & 10 & -9 \\ -9 & -7 & -13 & 3 \\ -15 & 6 & 1 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

392. Orbit 392 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -1 & -2 & -3 & -2 \\ 2 & 5 & 0 & 3 \\ -1 & -4 & -1 & 2 \\ 4 & 3 & -2 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 3 & 4 & 7 & 2 \\ -4 & -11 & 0 & -3 \\ 5 & 8 & 3 & 0 \\ -8 & -7 & 4 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

393. Orbit 393 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 7 & 29 & 23 \\ -7 & 58 & -11 & -12 \\ -1 & 25 & 40 & -16 \\ -7 & -18 & 0 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -3 & -13 & -11 \\ 3 & -26 & 5 & 6 \\ 1 & -11 & -18 & 8 \\ 3 & 8 & 0 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

394. Orbit 394 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 7 & 11 & -6 \\ -7 & -11 & 4 & 6 \\ 3 & -18 & -29 & -16 \\ 14 & 0 & 0 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -3 & -5 & 2 \\ 3 & 5 & -2 & -2 \\ -1 & 8 & 13 & 8 \\ -6 & 0 & 0 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

395. Orbit 395 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 25 & -8 & -5 \\ -7 & 7 & 7 & 5 \\ -19 & 8 & 4 & 19 \\ 6 & -10 & 5 & 15 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -11 & 4 & 1 \\ 3 & -3 & -3 & -1 \\ 9 & -4 & -2 & -7 \\ -2 & 4 & -3 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

396. Orbit 396 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & 4 & 6 & -1 \\ -3 & -8 & -10 & 5 \\ 10 & 1 & 3 & -2 \\ 0 & 11 & 1 & 4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & -2 & -2 & -1 \\ 1 & 4 & 4 & -1 \\ -4 & -1 & -1 & 2 \\ 0 & -5 & -1 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

397. Orbit 397 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & -22 & 7 & -17 \\ 8 & 3 & -29 & -12 \\ -15 & -7 & -7 & -23 \\ 11 & 18 & -7 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -2 & 10 & -3 & 7 \\ -4 & -1 & 13 & 6 \\ 7 & 3 & 3 & 11 \\ -5 & -8 & 3 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

398. Orbit 398 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 0 & 18 & 1 \\ 18 & -18 & 4 & -12 \\ 7 & 11 & -4 & 6 \\ 0 & -7 & 12 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 0 & -8 & -1 \\ -8 & 8 & -2 & 6 \\ -3 & -5 & 2 & -2 \\ 0 & 3 & -6 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

399. Orbit 399 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -4 & -4 & 18 & -8 \\ 4 & 0 & 15 & 15 \\ -12 & 7 & -11 & 4 \\ -4 & -11 & 0 & -29 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 2 & 2 & -8 & 2 \\ -2 & 0 & -7 & -5 \\ 6 & -3 & 5 & 0 \\ 2 & 5 & 0 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

400. Orbit 400 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 5 & -1 & -1 & -1 \\ -1 & -2 & -2 & -1 \\ -7 & 4 & 1 & -4 \\ 1 & 1 & 2 & -2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -11 & 3 & 3 & -1 \\ 3 & 6 & 4 & 5 \\ 17 & -10 & -1 & 12 \\ -3 & -1 & -6 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

401. Orbit 401 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 40 & 0 & -29 & 19 \\ -7 & -18 & 22 & -5 \\ 11 & -61 & -11 & -27 \\ 14 & -15 & -18 & -3 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & 0 & 13 & -9 \\ 3 & 8 & -10 & 3 \\ -5 & 27 & 5 & 13 \\ -6 & 7 & 8 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

402. Orbit 402 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & 14 & -22 & 2 \\ 9 & -15 & 43 & 13 \\ 16 & -10 & 18 & -6 \\ 19 & -11 & -25 & -17 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & -6 & 10 & -2 \\ -5 & 7 & -19 & -5 \\ -6 & 4 & -8 & 4 \\ -9 & 5 & 11 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

403. Orbit 403 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -22 & 25 & -29 & 6 \\ 9 & -11 & 54 & 20 \\ 16 & -3 & 36 & 5 \\ 19 & -11 & -25 & -17 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 10 & -11 & 13 & -4 \\ -5 & 5 & -24 & -8 \\ -6 & 1 & -16 & -1 \\ -9 & 5 & 11 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

404. Orbit 404 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -5 & -2 & -7 & -2 \\ -2 & 1 & 0 & 3 \\ 1 & -4 & 1 & 2 \\ 0 & -1 & -6 & 1 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 11 & 4 & 15 & 2 \\ 4 & -3 & 0 & -3 \\ -1 & 8 & -3 & 0 \\ 0 & 1 & 12 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

405. Orbit 405 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & 3 & 36 & 1 \\ -51 & 14 & -11 & -12 \\ 3 & 18 & 7 & 20 \\ 36 & -7 & 18 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & -1 & -16 & -1 \\ 23 & -6 & 5 & 6 \\ -1 & -8 & -3 & -8 \\ -16 & 3 & -8 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

406. Orbit 406 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 29 & 25 & 40 & -6 \\ -43 & 11 & -40 & -30 \\ 21 & -11 & 4 & 6 \\ -15 & -33 & 4 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -13 & -11 & -18 & 2 \\ 19 & -5 & 18 & 14 \\ -9 & 5 & -2 & -2 \\ 7 & 15 & -2 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

407. Orbit 407 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -7 & 3 & -4 & 10 \\ 0 & -8 & 8 & -2 \\ 3 & -10 & -1 & -10 \\ 4 & -1 & -3 & -14 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 3 & -1 & 2 & -6 \\ 0 & 4 & -4 & 2 \\ -1 & 4 & 1 & 6 \\ -2 & 1 & 1 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

408. Orbit 408 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -15 & 18 & 0 & -9 \\ -11 & 18 & -7 & 12 \\ -6 & -4 & 18 & 8 \\ 16 & 4 & 11 & 15 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 7 & -8 & 0 & 3 \\ 5 & -8 & 3 & -4 \\ 4 & 2 & -8 & -2 \\ -8 & -2 & -5 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

409. Orbit 409 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & 11 & -33 & 19 \\ -36 & 18 & -3 & -1 \\ -4 & -7 & 3 & -30 \\ -7 & 0 & -17 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & -5 & 15 & -9 \\ 16 & -8 & 1 & 1 \\ 2 & 3 & -1 & 14 \\ 3 & 0 & 7 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

410. Orbit 410 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 18 & -26 & -10 \\ 11 & 18 & -7 & -8 \\ 14 & 4 & -11 & -1 \\ 7 & 4 & -6 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -8 & 12 & 4 \\ -5 & -8 & 3 & 4 \\ -6 & -2 & 5 & 1 \\ -3 & -2 & 2 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

411. Orbit 411 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 14 & 3 & 15 & -10 \\ 0 & 25 & 15 & 10 \\ -8 & -11 & -7 & -12 \\ 14 & -11 & -7 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -6 & -1 & -7 & 4 \\ 0 & -11 & -7 & -4 \\ 4 & 5 & 3 & 6 \\ -6 & 5 & 3 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

412. Orbit 412 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -25 & -3 & 25 & -17 \\ -3 & 15 & 36 & 10 \\ -11 & 22 & -4 & -1 \\ -33 & -26 & -7 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 11 & 1 & -11 & 7 \\ 1 & -7 & -16 & -4 \\ 5 & -10 & 2 & 1 \\ 15 & 12 & 3 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

413. Orbit 413 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & 10 & 15 & -28 \\ 18 & -15 & -3 & 28 \\ -15 & -11 & 4 & -30 \\ -22 & 0 & -36 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & -4 & -7 & 12 \\ -8 & 7 & 1 & -12 \\ 7 & 5 & -2 & 14 \\ 10 & 0 & 16 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

414. Orbit 414 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & 18 & -7 & 8 \\ -18 & 11 & 22 & -1 \\ -15 & -14 & -11 & -12 \\ -8 & -7 & -10 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & -8 & 3 & -4 \\ 8 & -5 & -10 & 1 \\ 7 & 6 & 5 & 6 \\ 4 & 3 & 4 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

415. Orbit 415 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 18 & -8 & 19 \\ 8 & 18 & -25 & -23 \\ -11 & -18 & 7 & -22 \\ -4 & 4 & 12 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -8 & 4 & -9 \\ -4 & -8 & 11 & 11 \\ 5 & 8 & -3 & 10 \\ 2 & -2 & -6 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

416. Orbit 416 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & -3 & -8 & -1 \\ 3 & -5 & -1 & 1 \\ 5 & -2 & 4 & -9 \\ 4 & 0 & -7 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -8 & 7 & 18 & -1 \\ -9 & 11 & 3 & 1 \\ -9 & 4 & -8 & 23 \\ -10 & 0 & 15 & 19 \end{pmatrix}$$

and $rank(A) = 4$.

417. Orbit 417 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & 4 & 13 & 13 \\ -10 & -6 & 4 & -8 \\ 1 & 0 & -1 & -6 \\ 7 & 6 & 6 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -4 & -8 & -29 & -31 \\ 22 & 14 & -8 & 20 \\ -1 & 0 & 3 & 16 \\ -13 & -10 & -12 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

418. Orbit 418 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 6 & 2 & -1 \\ 0 & 0 & -6 & 2 \\ 4 & 2 & -7 & 1 \\ 1 & -4 & -3 & 4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -5 & -14 & -4 & 1 \\ 0 & 0 & 14 & -2 \\ -6 & -6 & 15 & 1 \\ -1 & 8 & 5 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

419. Orbit 419 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 7 & 7 & 15 \\ -35 & 14 & 11 & 10 \\ -1 & 11 & 18 & -8 \\ -21 & -18 & -14 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -3 & -3 & -7 \\ 15 & -6 & -5 & -4 \\ 1 & -5 & -8 & 4 \\ 9 & 8 & 6 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

420. Orbit 420 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & 19 & 15 & -16 \\ -11 & 14 & -4 & -9 \\ -9 & 12 & -28 & 1 \\ -4 & -1 & 3 & 14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & -9 & -7 & 6 \\ 5 & -6 & 2 & 5 \\ 5 & -6 & 12 & 1 \\ 2 & 1 & -1 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

421. Orbit 421 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 39 & 21 & 44 & 12 \\ -18 & 25 & 44 & -1 \\ 7 & 18 & -36 & -19 \\ 14 & -22 & 22 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -17 & -9 & -20 & -6 \\ 8 & -11 & -20 & 1 \\ -3 & -8 & 16 & 9 \\ -6 & 10 & -10 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

422. Orbit 422 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 7 & 3 & -28 \\ 4 & 0 & 29 & 17 \\ 18 & 11 & -22 & 21 \\ -4 & 4 & -24 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -3 & -1 & 12 \\ -2 & 0 & -13 & -7 \\ -8 & -5 & 10 & -9 \\ 2 & -2 & 10 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

423. Orbit 423 has incidence 18 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -15 & -7 & -29 & 1 \\ -7 & 0 & 11 & -12 \\ -1 & -3 & -18 & -8 \\ -15 & 4 & -14 & 25 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 7 & 3 & 13 & -1 \\ 3 & 0 & -5 & 6 \\ 1 & 1 & 8 & 4 \\ 7 & -2 & 6 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

424. Orbit 424 has incidence 17 stabilizer of size 36. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -4 & 7 & 8 \\ -10 & 7 & 11 & -8 \\ -1 & -11 & 4 & -8 \\ -14 & 0 & -14 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 2 & -3 & -4 \\ 4 & -3 & -5 & 4 \\ 1 & 5 & -2 & 4 \\ 6 & 0 & 6 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

425. Orbit 425 has incidence 17 stabilizer of size 12. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & -5 & -16 & 1 \\ 2 & -12 & -1 & -11 \\ -10 & -4 & -6 & 6 \\ 2 & -3 & 1 & 14 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & 11 & 36 & -5 \\ -4 & 28 & 1 & 29 \\ 24 & 10 & 12 & -8 \\ -4 & 7 & -3 & -30 \end{pmatrix}$$

and $rank(A) = 4$.

426. Orbit 426 has incidence 17 stabilizer of size 8. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{16} \begin{pmatrix} -3 & 7 & -14 & 8 \\ 3 & 5 & -5 & 5 \\ 1 & -2 & 13 & 0 \\ -3 & 0 & -2 & -5 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} 1 & -3 & 6 & -6 \\ -1 & -3 & 3 & 1 \\ 1 & 0 & -5 & 4 \\ 1 & 0 & 0 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

427. Orbit 427 has incidence 17 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 29 & -18 & -3 \\ 4 & 4 & 18 & -12 \\ 3 & -14 & -40 & 13 \\ -1 & -11 & -18 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -13 & 8 & 1 \\ -2 & -2 & -8 & 6 \\ -1 & 6 & 18 & -5 \\ 1 & 5 & 8 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

428. Orbit 428 has incidence 17 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 4 & 15 & -28 \\ 22 & -4 & 25 & -1 \\ 10 & 26 & 4 & 10 \\ 21 & 4 & -14 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -2 & -7 & 12 \\ -10 & 2 & -11 & 1 \\ -4 & -12 & -2 & -4 \\ -9 & -2 & 6 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

429. Orbit 429 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} 37 & -2 & 0 & -1 \\ 0 & 37 & 76 & 1 \\ -39 & 13 & -61 & 1 \\ 24 & 0 & 37 & 61 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} -17 & 4 & 0 & -17 \\ 0 & -17 & -38 & 17 \\ 21 & -7 & 27 & 17 \\ -10 & 0 & -17 & -27 \end{pmatrix}$$

and $rank(A) = 4$.

430. Orbit 430 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 58 & -29 & 5 \\ 18 & 58 & -7 & -5 \\ -26 & 22 & 29 & 9 \\ -18 & 0 & -7 & 83 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -26 & 13 & -3 \\ -8 & -26 & 3 & 3 \\ 12 & -10 & -13 & -3 \\ 8 & 0 & 3 & -37 \end{pmatrix}$$

and $rank(A) = 4$.

431. Orbit 431 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} -35 & 0 & -24 & -29 \\ -2 & 15 & -13 & -8 \\ 7 & 28 & 22 & 23 \\ 26 & 13 & 63 & 2 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} 13 & 0 & 10 & 1 \\ 4 & -11 & 7 & 16 \\ 5 & -18 & -6 & 11 \\ -14 & -7 & -31 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

432. Orbit 432 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -36 & -29 & -18 & -17 \\ -11 & -25 & 25 & -5 \\ 21 & 4 & -22 & 9 \\ -18 & 0 & -43 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & 13 & 8 & 7 \\ 5 & 11 & -11 & 3 \\ -9 & -2 & 10 & -3 \\ 8 & 0 & 19 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

433. Orbit 433 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 25 & -32 & 0 & 17 \\ 26 & -39 & 32 & 21 \\ -5 & 31 & 7 & -3 \\ 6 & 38 & 25 & -45 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -13 & 14 & 0 & -15 \\ -10 & 15 & -14 & -3 \\ 7 & -17 & -1 & 13 \\ -4 & -18 & -13 & 19 \end{pmatrix}$$

and $rank(A) = 4$.

434. Orbit 434 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -18 & 7 & 8 \\ 18 & -11 & 0 & -1 \\ -1 & -14 & -11 & 2 \\ 14 & -7 & 4 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 8 & -3 & -4 \\ -8 & 5 & 0 & 1 \\ 1 & 6 & 5 & 0 \\ -6 & 3 & -2 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

435. Orbit 435 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 65 & -47 & 18 & -42 \\ 18 & -18 & -40 & 24 \\ -44 & -7 & 54 & -27 \\ 11 & 0 & 4 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -29 & 21 & -8 & 18 \\ -8 & 8 & 18 & -10 \\ 20 & 3 & -24 & 13 \\ -5 & 0 & -2 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

436. Orbit 436 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{20} \begin{pmatrix} 4 & -5 & 0 & 5 \\ 13 & -2 & -23 & -4 \\ 1 & -20 & 3 & -2 \\ -8 & 7 & -10 & 9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -2 & 3 & 0 & -5 \\ -5 & 2 & 9 & 6 \\ 1 & 10 & -3 & 6 \\ 4 & -3 & 4 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

437. Orbit 437 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} 48 & -24 & -13 & 19 \\ 24 & -72 & -46 & -10 \\ -17 & 28 & -33 & -12 \\ -37 & -24 & 26 & 83 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} -20 & 10 & 7 & -19 \\ -10 & 30 & 16 & 20 \\ 15 & -18 & 9 & 24 \\ 17 & 10 & -14 & -33 \end{pmatrix}$$

and $rank(A) = 4$.

438. Orbit 438 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 4 & -7 & 8 \\ 7 & 7 & 7 & -1 \\ -8 & -3 & -7 & -12 \\ -4 & -8 & 7 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -2 & 3 & -4 \\ -3 & -3 & -3 & 1 \\ 4 & 1 & 3 & 6 \\ 2 & 4 & -3 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

439. Orbit 439 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 0 & 7 & -3 \\ 0 & -11 & 7 & 10 \\ -1 & 15 & 7 & 13 \\ 3 & 4 & 15 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 0 & -3 & 1 \\ 0 & 5 & -3 & -4 \\ 1 & -7 & -3 & -5 \\ -1 & -2 & -7 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

440. Orbit 440 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -2 & -7 & 2 & 1 \\ -1 & -7 & -3 & 1 \\ -2 & -1 & 9 & -2 \\ -3 & -1 & -6 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & 17 & -6 & -5 \\ 3 & 17 & 5 & 1 \\ 6 & 3 & -21 & 8 \\ 7 & 3 & 12 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

441. Orbit 441 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -7 & -3 & 4 & 2 \\ 8 & 0 & 0 & -2 \\ -11 & 4 & -7 & -2 \\ 2 & 5 & 3 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 3 & 1 & -2 & -2 \\ -4 & 0 & 0 & 2 \\ 5 & -2 & 3 & 2 \\ 0 & -1 & -1 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

442. Orbit 442 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -8 & -5 & 4 & -1 \\ 2 & 2 & 2 & 0 \\ 4 & -1 & -1 & 0 \\ 6 & -4 & -5 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 18 & 11 & -8 & 1 \\ -4 & -4 & -4 & 2 \\ -6 & 1 & 3 & 4 \\ -12 & 8 & 9 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

443. Orbit 443 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -22 & 28 & 8 & 8 \\ 0 & -15 & -32 & 3 \\ -8 & 18 & 11 & -1 \\ -22 & -11 & -7 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 10 & -12 & -4 & -4 \\ 0 & 7 & 14 & -1 \\ 4 & -8 & -5 & 1 \\ 10 & 5 & 3 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

444. Orbit 444 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 8 & -4 & -11 & 1 \\ -5 & -12 & 0 & 9 \\ -20 & 4 & -4 & 2 \\ 5 & 18 & 1 & 8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -4 & 2 & 5 & -1 \\ 1 & 6 & 0 & -3 \\ 10 & -2 & 2 & 0 \\ -3 & -8 & -1 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

445. Orbit 445 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -40 & -36 & 7 & -3 \\ 36 & 36 & 0 & 6 \\ -1 & -36 & -11 & 2 \\ 61 & -36 & 4 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 18 & 16 & -3 & 1 \\ -16 & -16 & 0 & -2 \\ 1 & 16 & 5 & 0 \\ -27 & 16 & -2 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

446. Orbit 446 has incidence 17 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 17 & -7 & 14 & -10 \\ 18 & -18 & -40 & 2 \\ 5 & -6 & -3 & 8 \\ -8 & -3 & 1 & 26 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & 3 & -6 & 4 \\ -8 & 8 & 18 & 0 \\ -1 & 2 & 1 & -2 \\ 4 & 1 & -1 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

447. Orbit 447 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 40 & 29 & -11 & -6 \\ -22 & 29 & 4 & -5 \\ -37 & -7 & -43 & 27 \\ -11 & 29 & 22 & 90 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & -13 & 5 & 2 \\ 10 & -13 & -2 & 3 \\ 17 & 3 & 19 & -11 \\ 5 & -13 & -10 & -40 \end{pmatrix}$$

and $rank(A) = 4$.

448. Orbit 448 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -2 & -5 & 10 & -3 \\ 7 & -13 & 9 & 3 \\ -3 & 6 & -12 & 1 \\ 10 & 8 & 1 & -25 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & 11 & -22 & 3 \\ -15 & 29 & -21 & -3 \\ 9 & -14 & 26 & 3 \\ -22 & -18 & -3 & 57 \end{pmatrix}$$

and $rank(A) = 4$.

449. Orbit 449 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -10 & 3 & 2 & 5 \\ 2 & 5 & -4 & 3 \\ -3 & -2 & -7 & 4 \\ -3 & 0 & 1 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 22 & -7 & -4 & -15 \\ -4 & -11 & 8 & -3 \\ 9 & 4 & 15 & -4 \\ 7 & 0 & -3 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

450. Orbit 450 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 8 & -1 & 0 & 7 \\ -3 & -2 & 0 & 1 \\ 7 & 3 & 4 & -10 \\ -6 & 0 & 0 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -18 & 3 & 0 & -19 \\ 7 & 4 & 0 & 1 \\ -13 & -7 & -8 & 28 \\ 14 & 0 & 0 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

451. Orbit 451 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 3 & -14 & 4 & -1 \\ 3 & -11 & 1 & 1 \\ -6 & 0 & -1 & -7 \\ 4 & -3 & -2 & -7 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -7 & 32 & -8 & -1 \\ -5 & 25 & -3 & 1 \\ 16 & 0 & 1 & 21 \\ -8 & 7 & 4 & 17 \end{pmatrix}$$

and $rank(A) = 4$.

452. Orbit 452 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 7 & 22 & 70 \\ 32 & -58 & 7 & -41 \\ 57 & -47 & -4 & -2 \\ 22 & -18 & 11 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -3 & -10 & -32 \\ -14 & 26 & -3 & 19 \\ -25 & 21 & 2 & 2 \\ -10 & 8 & -5 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

453. Orbit 453 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 11 & 8 & -4 & -11 \\ -4 & -4 & 26 & 8 \\ -1 & -11 & -32 & 4 \\ 14 & -7 & 4 & -33 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -5 & -4 & 2 & 3 \\ 2 & 2 & -12 & -2 \\ 1 & 5 & 14 & 0 \\ -6 & 3 & -2 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

454. Orbit 454 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 11 & 0 & -5 \\ -4 & 39 & 8 & -3 \\ -12 & 3 & 8 & -11 \\ -4 & -11 & 8 & 21 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -5 & 0 & 1 \\ 2 & -17 & -4 & 3 \\ 6 & -1 & -4 & 7 \\ 2 & 5 & -4 & -9 \end{pmatrix}$$

and $rank(A) = 4$.

455. Orbit 455 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 76 & 11 & 0 & -35 \\ -29 & -40 & 0 & 17 \\ 17 & 29 & 22 & -20 \\ -22 & 58 & -36 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -34 & -5 & 0 & 15 \\ 13 & 18 & 0 & -7 \\ -7 & -13 & -10 & 10 \\ 10 & -26 & 16 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

456. Orbit 456 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 29 & 11 & 18 & -28 \\ -29 & -4 & 0 & 17 \\ -1 & 29 & 15 & -9 \\ -15 & 22 & -25 & 54 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -13 & -5 & -8 & 12 \\ 13 & 2 & 0 & -7 \\ 1 & -13 & -7 & 5 \\ 7 & -10 & 11 & -24 \end{pmatrix}
$$

and $rank(A) = 4$.

457. Orbit 457 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} -7 & 0 & -11 & -10 \\ -4 & 54 & 18 & -12 \\ -30 & -11 & -7 & 16 \\ 25 & -7 & 22 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & 0 & 5 & 4 \\ 2 & -24 & -8 & 6 \\ 14 & 5 & 3 & -6 \\ -11 & 3 & -10 & 18 \end{pmatrix}
$$

and $rank(A) = 4$.

458. Orbit 458 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} -11 & -62 & 7 & 38 \\ 33 & -36 & -40 & -23 \\ 11 & -7 & 0 & -34 \\ 25 & -11 & 11 & -133 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 5 & 28 & -3 & -18 \\ -15 & 16 & 18 & 11 \\ -5 & 3 & 0 & 16 \\ -11 & 5 & -5 & 59 \end{pmatrix}
$$

and $rank(A) = 4$.

459. Orbit 459 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8}\begin{pmatrix} -7 & -18 & -58 & -1 \\ 14 & -11 & 29 & -6 \\ -13 & 0 & -18 & 3 \\ 18 & -29 & 11 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 3 & 8 & 26 & -1 \\ -6 & 5 & -13 & 4 \\ 7 & 0 & 8 & 1 \\ -8 & 13 & -5 & 10 \end{pmatrix}
$$

and $rank(A) = 4$.

460. Orbit 460 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -5 & -5 & 5 & -1 \\ 7 & -10 & 1 & -2 \\ 2 & 4 & 1 & 1 \\ 2 & 3 & 1 & -12 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 11 & 11 & -11 & -1 \\ -15 & 22 & -3 & 8 \\ -2 & -10 & -3 & 3 \\ -4 & -7 & -3 & 28 \end{pmatrix}$$

and $rank(A) = 4$.

461. Orbit 461 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -58 & 7 & -17 \\ 14 & -58 & 0 & 6 \\ -1 & 0 & 11 & -20 \\ 25 & 0 & -18 & 43 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 26 & -3 & 7 \\ -6 & 26 & 0 & -2 \\ 1 & 0 & -5 & 10 \\ -11 & 0 & 8 & -19 \end{pmatrix}$$

and $rank(A) = 4$.

462. Orbit 462 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -11 & -11 & 3 & 7 \\ -23 & -4 & 0 & -15 \\ -10 & 7 & 4 & 5 \\ 10 & 0 & -7 & 17 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 5 & 5 & -1 & -5 \\ 11 & 2 & 0 & 9 \\ 6 & -3 & -2 & 1 \\ -4 & 0 & 3 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

463. Orbit 463 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 0 & 0 & 0 & -4 \\ -1 & 11 & -4 & -4 \\ 8 & 1 & 17 & -6 \\ 3 & 4 & -7 & 14 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 0 & 0 & 0 & 0 \\ 1 & -5 & 2 & 4 \\ -2 & -1 & -7 & 6 \\ -1 & -2 & 3 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

464. Orbit 464 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 3 & 6 & -4 & -9 \\ -6 & 12 & 11 & -5 \\ -4 & -3 & 14 & 3 \\ 7 & 7 & -7 & 15 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -1 & -2 & 2 & 1 \\ 2 & -6 & -5 & 5 \\ 2 & 1 & -6 & 1 \\ -3 & -3 & 3 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

465. Orbit 465 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -3 & 0 & -4 & 3 \\ -8 & -1 & 4 & -7 \\ -6 & 10 & -2 & -2 \\ -1 & -3 & -2 & -30 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & 0 & 2 & -3 \\ 4 & 1 & -2 & 5 \\ 4 & -4 & 0 & 4 \\ 1 & 1 & 0 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

466. Orbit 466 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 3 & 0 & 25 \\ -4 & 18 & 4 & -20 \\ -12 & -21 & -3 & -4 \\ -4 & 0 & 15 & 11 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -1 & 0 & -13 \\ 2 & -8 & -2 & 10 \\ 6 & 9 & 1 & 4 \\ 2 & 0 & -7 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

467. Orbit 467 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 17 & 18 & 60 & 11 \\ -34 & 33 & -25 & 4 \\ 8 & -9 & 1 & -4 \\ -9 & 26 & -34 & -35 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -7 & -10 & -26 & -11 \\ 14 & -11 & 9 & 10 \\ -2 & 5 & -3 & 12 \\ 5 & -12 & 14 & 17 \end{pmatrix}$$

and $rank(A) = 4$.

468. Orbit 468 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -11 & 2 & -3 & 0 \\ 6 & 8 & 1 & -3 \\ -10 & -8 & -8 & 2 \\ 7 & -8 & 0 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 25 & -4 & 7 & -4 \\ -14 & -18 & -3 & 11 \\ 24 & 18 & 18 & 0 \\ -15 & 18 & 0 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

469. Orbit 469 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44}\begin{pmatrix} 38 & -25 & -32 & -9 \\ -6 & 0 & 63 & 9 \\ -31 & 19 & -45 & 35 \\ 13 & 32 & 38 & -19 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} -18 & 13 & 14 & -5 \\ 4 & 0 & -31 & 5 \\ 17 & -9 & 19 & -5 \\ -5 & -14 & -18 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

470. Orbit 470 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -8 & 7 & -7 & -4 \\ 0 & 10 & 6 & 0 \\ -9 & 1 & -12 & 10 \\ 5 & -2 & 3 & -16 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 18 & -15 & 17 & 4 \\ 0 & -22 & -14 & 4 \\ 21 & -3 & 26 & -18 \\ -11 & 4 & -7 & 36 \end{pmatrix}$$

and $rank(A) = 4$.

471. Orbit 471 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -25 & -11 & -11 & -17 \\ 7 & 18 & 0 & 17 \\ -66 & -7 & 4 & -13 \\ -4 & 22 & -7 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 11 & 5 & 5 & 7 \\ -3 & -8 & 0 & -7 \\ 30 & 3 & -2 & 7 \\ 2 & -10 & 3 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

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472. Orbit 472 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & 29 & -29 & -35 \\ -11 & -29 & 0 & -12 \\ -12 & 29 & 11 & -2 \\ -22 & 29 & -18 & 83 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & -13 & 13 & 15 \\ 5 & 13 & 0 & 6 \\ 6 & -13 & -5 & 2 \\ 10 & -13 & 8 & -37 \end{pmatrix}$$

and $rank(A) = 4$.

473. Orbit 473 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -15 & -18 & 14 & -1 \\ 22 & -11 & -7 & -6 \\ 9 & 8 & 4 & -3 \\ 10 & -7 & 11 & 14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 7 & 8 & -6 & -1 \\ -10 & 5 & 3 & 4 \\ -3 & -4 & -2 & 3 \\ -4 & 3 & -5 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

474. Orbit 474 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{124} \begin{pmatrix} -35 & -10 & 0 & -5 \\ 24 & 34 & 1 & -31 \\ 25 & 56 & -33 & -62 \\ -12 & 34 & -12 & -194 \end{pmatrix} + \frac{\sqrt{5}}{124} \begin{pmatrix} 11 & 12 & 0 & -25 \\ -4 & -16 & 5 & 31 \\ 1 & -30 & 21 & 62 \\ 2 & -16 & 2 & 84 \end{pmatrix}$$

and $rank(A) = 4$.

475. Orbit 475 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & 0 & 2 & 3 \\ -4 & -5 & -6 & -1 \\ 5 & 3 & 7 & 1 \\ -4 & 2 & 1 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & 0 & -4 & -11 \\ 10 & 11 & 14 & 5 \\ -9 & -7 & -15 & 3 \\ 8 & -4 & -3 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

476. Orbit 476 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -10 & 0 & 4 & 0 \\ 5 & 8 & -7 & 6 \\ 5 & 1 & -12 & 4 \\ 2 & -3 & 1 & -12 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 22 & 0 & -8 & -4 \\ -11 & -18 & 15 & -10 \\ -9 & -3 & 26 & -4 \\ -4 & 7 & -3 & 28 \end{pmatrix}$$

and $rank(A) = 4$.

477. Orbit 477 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -6 & -6 & -16 & 0 \\ 1 & 3 & 6 & -8 \\ -5 & -8 & -16 & 5 \\ 12 & 5 & 0 & 13 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 14 & 14 & 36 & -4 \\ -3 & -7 & -14 & 22 \\ 13 & 18 & 36 & -7 \\ -26 & -11 & 0 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

478. Orbit 478 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -5 & 10 & 18 & 7 \\ -3 & 11 & -8 & 6 \\ 2 & 3 & -2 & -7 \\ -4 & 2 & -2 & -8 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 11 & -22 & -40 & -19 \\ 7 & -25 & 18 & -10 \\ -2 & -7 & 4 & 21 \\ 10 & -4 & 4 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

479. Orbit 479 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -4 & -4 & 18 & 6 \\ -4 & 11 & 0 & 5 \\ 16 & 22 & -7 & -7 \\ -12 & 7 & 11 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 2 & 2 & -8 & -4 \\ 2 & -5 & 0 & -1 \\ -6 & -10 & 3 & 5 \\ 6 & -3 & -5 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

480. Orbit 480 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 11 & 3 & -11 & -1 \\ 0 & 4 & 11 & 5 \\ 2 & -7 & -3 & 4 \\ -1 & -8 & -3 & 18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -5 & -1 & 5 & -1 \\ 0 & -2 & -5 & -1 \\ 0 & 3 & 1 & 0 \\ 1 & 4 & 1 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

481. Orbit 481 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 25 & 0 & 23 \\ 11 & -7 & 0 & -12 \\ -8 & 0 & 22 & -16 \\ -15 & -4 & 22 & -47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -11 & 0 & -11 \\ -5 & 3 & 0 & 6 \\ 4 & 0 & -10 & 8 \\ 7 & 2 & -10 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

482. Orbit 482 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 0 & 17 & 7 & 8 \\ -7 & 8 & 11 & 0 \\ -20 & 4 & -10 & 6 \\ -5 & -1 & 8 & -18 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 0 & -7 & -3 & -6 \\ 3 & -4 & -5 & 2 \\ 10 & -2 & 4 & 0 \\ 3 & 1 & -4 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

483. Orbit 483 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -16 & -1 & -3 & 2 \\ 1 & 1 & -5 & 1 \\ 5 & 11 & -12 & 10 \\ 6 & -1 & 6 & -13 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 36 & 3 & 7 & -8 \\ -3 & -3 & 11 & 1 \\ -9 & -25 & 26 & -18 \\ -12 & 3 & -14 & 29 \end{pmatrix}$$

and $rank(A) = 4$.

484. Orbit 484 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 18 & 36 & 5 \\ -11 & -36 & -18 & -23 \\ 68 & 51 & 69 & -2 \\ 36 & -11 & -7 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -8 & -16 & -3 \\ 5 & 16 & 8 & 11 \\ -30 & -23 & -31 & 2 \\ -16 & 5 & 3 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

485. Orbit 485 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 18 & -22 & 5 \\ -40 & 40 & 40 & 24 \\ -8 & 4 & -25 & 27 \\ -11 & 18 & -7 & 72 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -8 & 10 & -3 \\ 18 & -18 & -18 & -10 \\ 4 & -2 & 11 & -11 \\ 5 & -8 & 3 & -32 \end{pmatrix}$$

and $rank(A) = 4$.

486. Orbit 486 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & -3 & -6 & 6 \\ -1 & -4 & -2 & -7 \\ -3 & -3 & 1 & -7 \\ -1 & 2 & -1 & -12 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & 7 & 14 & -16 \\ 3 & 8 & 4 & 19 \\ 9 & 5 & -3 & 21 \\ 3 & -4 & 1 & 28 \end{pmatrix}$$

and $rank(A) = 4$.

487. Orbit 487 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -11 & -25 & 41 \\ -18 & -65 & -11 & 6 \\ -15 & 0 & -33 & -20 \\ 36 & 18 & -25 & -115 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 5 & 11 & -19 \\ 8 & 29 & 5 & -2 \\ 7 & 0 & 15 & 10 \\ -16 & -8 & 11 & 51 \end{pmatrix}$$

and $rank(A) = 4$.

488. Orbit 488 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -3 & 2 & -4 & -1 \\ 3 & 11 & 2 & -4 \\ -5 & 0 & -7 & 6 \\ -3 & -3 & 9 & 21 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 7 & -4 & 8 & -1 \\ -7 & -25 & -4 & 12 \\ 13 & 0 & 17 & -8 \\ 7 & 7 & -21 & -49 \end{pmatrix}$$

and $rank(A) = 4$.

489. Orbit 489 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12}\begin{pmatrix} 8 & 14 & 14 & 4 \\ -26 & -10 & -18 & 0 \\ 23 & -17 & 19 & -17 \\ -1 & -15 & 15 & 43 \end{pmatrix} + \frac{\sqrt{5}}{12}\begin{pmatrix} -4 & -6 & -6 & -4 \\ 12 & 4 & 8 & 2 \\ -9 & 7 & -9 & 11 \\ 1 & 7 & -7 & -19 \end{pmatrix}$$

and $rank(A) = 4$.

490. Orbit 490 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 22 & 18 & -11 & 9 \\ -1 & -21 & -7 & 19 \\ -20 & 5 & -14 & 3 \\ 3 & 0 & -18 & 21 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -10 & -8 & 5 & -5 \\ 1 & 9 & 3 & -7 \\ 10 & -3 & 6 & 1 \\ -1 & 0 & 8 & -9 \end{pmatrix}$$

and $rank(A) = 4$.

491. Orbit 491 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 1 & 18 & 0 & -15 \\ 3 & 0 & -4 & 5 \\ 2 & 29 & -25 & -4 \\ 14 & 11 & -21 & 54 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -1 & -8 & 0 & 5 \\ -1 & 0 & 2 & -1 \\ 0 & -13 & 11 & 4 \\ -6 & -5 & 9 & -24 \end{pmatrix}$$

and $rank(A) = 4$.

492. Orbit 492 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -18 & -32 & 26 & 6 \\ 11 & 14 & -4 & 5 \\ 20 & 1 & -10 & 1 \\ -1 & -3 & 26 & 14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 8 & 14 & -12 & -4 \\ -5 & -6 & 2 & -1 \\ -8 & -1 & 4 & 1 \\ 1 & 1 & -12 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

493. Orbit 493 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & -22 & -11 & -8 \\ -22 & -21 & -18 & 15 \\ 17 & 26 & 15 & -4 \\ -4 & -11 & 22 & 7 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & 10 & 5 & 2 \\ 10 & 9 & 8 & -5 \\ -7 & -12 & -7 & 4 \\ 2 & 5 & -10 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

494. Orbit 494 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -14 & 18 & -11 & -5 \\ 7 & 37 & 15 & -3 \\ -12 & -3 & -28 & 11 \\ 3 & 0 & -10 & -37 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 6 & -8 & 5 & 1 \\ -3 & -17 & -7 & 3 \\ 6 & 1 & 12 & -3 \\ -1 & 0 & 4 & 17 \end{pmatrix}$$

and $rank(A) = 4$.

495. Orbit 495 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & -11 & -11 & -1 \\ 25 & -3 & 11 & 1 \\ -5 & -3 & -39 & 7 \\ 3 & -11 & -3 & -33 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 5 & 5 & -1 \\ -11 & 1 & -5 & 1 \\ 3 & 1 & 17 & -1 \\ -1 & 5 & 1 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

496. Orbit 496 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -7 & 0 & 96 & -15 \\ -51 & 44 & -64 & 9 \\ 52 & 57 & 127 & -16 \\ -44 & 13 & 57 & 26 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 1 & 0 & -42 & -1 \\ 23 & -22 & 28 & 5 \\ -20 & -27 & -59 & 18 \\ 22 & -5 & -27 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

497. Orbit 497 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 1 & -26 & 0 & 7 \\ 18 & -25 & 0 & 5 \\ 6 & -14 & -14 & 18 \\ 3 & 7 & 22 & -40 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -1 & 12 & 0 & -5 \\ -8 & 11 & 0 & -1 \\ -2 & 6 & 6 & -6 \\ -1 & -3 & -10 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

498. Orbit 498 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 17 & -15 & 7 & 7 \\ 7 & -21 & 2 & 0 \\ -12 & -5 & 13 & -8 \\ 2 & 11 & 6 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -39 & 33 & -17 & -21 \\ -15 & 47 & -4 & 4 \\ 28 & 11 & -29 & 22 \\ -4 & -25 & -14 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

499. Orbit 499 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -10 & -7 & -3 & 10 \\ 14 & -7 & 4 & -13 \\ 13 & -7 & -21 & -3 \\ 3 & -7 & -6 & -4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 4 & 3 & 1 & -6 \\ -6 & 3 & -2 & 7 \\ -5 & 3 & 9 & 3 \\ -1 & 3 & 2 & 2 \end{pmatrix}$$

and $rank(A) = 4$.

500. Orbit 500 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & 6 & -2 & 3 \\ -10 & 6 & -6 & 0 \\ -8 & 6 & 7 & -5 \\ 1 & 4 & 1 & -16 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & -14 & 4 & -11 \\ 22 & -14 & 14 & 4 \\ 18 & -14 & -15 & 15 \\ -1 & -8 & -3 & 34 \end{pmatrix}$$

and $rank(A) = 4$.

501. Orbit 501 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -10 & -11 & 0 & 17 \\ 14 & -14 & 8 & -24 \\ 13 & 4 & -28 & -7 \\ 3 & -7 & -6 & -12 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 4 & 5 & 0 & -9 \\ -6 & 6 & -4 & 12 \\ -5 & -2 & 12 & 5 \\ -1 & 3 & 2 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

502. Orbit 502 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 5 & -14 & 10 & 11 \\ 7 & -7 & -7 & -9 \\ 6 & -4 & 11 & -3 \\ -10 & -3 & 0 & -21 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & 6 & -4 & -7 \\ -3 & 3 & 3 & 5 \\ -2 & 2 & -5 & 3 \\ 4 & 1 & 0 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

503. Orbit 503 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 14 & 21 & 0 & 7 \\ -9 & 3 & -3 & 3 \\ -3 & 6 & -2 & -5 \\ -6 & 8 & 1 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -32 & -47 & 0 & -19 \\ 21 & -7 & 7 & -3 \\ 9 & -14 & 4 & 17 \\ 14 & -18 & -3 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

504. Orbit 504 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -25 & -47 & 5 \\ 0 & -40 & 11 & -23 \\ 10 & -7 & 11 & -16 \\ 7 & -36 & 11 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 11 & 21 & -3 \\ 0 & 18 & -5 & 11 \\ -4 & 3 & -5 & 8 \\ -3 & 16 & -5 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

505. Orbit 505 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 29 & 18 & 5 \\ 36 & 18 & -47 & -23 \\ 28 & 0 & 0 & -2 \\ 0 & 47 & 29 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -13 & -8 & -3 \\ -16 & -8 & 21 & 11 \\ -12 & 0 & 0 & 2 \\ 0 & -21 & -13 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

506. Orbit 506 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 18 & -69 & -13 \\ 25 & -11 & 11 & 31 \\ 79 & 0 & 11 & -20 \\ 18 & -29 & -47 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -8 & 31 & 5 \\ -11 & 5 & -5 & -13 \\ -35 & 0 & -5 & 10 \\ -8 & 13 & 21 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

507. Orbit 507 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & -6 & 3 & -1 \\ -1 & -4 & -1 & 0 \\ -2 & -1 & 9 & -4 \\ -3 & -3 & -7 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & 14 & -7 & -1 \\ 3 & 10 & 1 & 4 \\ 6 & 3 & -21 & 14 \\ 7 & 7 & 15 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

508. Orbit 508 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 54 & -22 & -29 & 5 \\ -25 & 11 & 11 & -5 \\ -8 & -29 & 18 & -5 \\ 43 & 18 & 0 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -24 & 10 & 13 & -3 \\ 11 & -5 & -5 & 3 \\ 4 & 13 & -8 & 3 \\ -19 & -8 & 0 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

509. Orbit 509 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -43 & 60 & 86 & 55 \\ 0 & 9 & -26 & -3 \\ -19 & 35 & -17 & -39 \\ 8 & 34 & 9 & -17 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 19 & -26 & -38 & -33 \\ 0 & -5 & 12 & 9 \\ 13 & -17 & 7 & 29 \\ -2 & -14 & -5 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

510. Orbit 510 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & -11 & 18 & -6 \\ 54 & -29 & -25 & 6 \\ -44 & 22 & -14 & -2 \\ -11 & -4 & -7 & -116 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & 5 & -8 & 2 \\ -24 & 13 & 11 & -2 \\ 20 & -10 & 6 & 2 \\ 5 & 2 & 3 & 52 \end{pmatrix}$$

and $rank(A) = 4$.

511. Orbit 511 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 1 & 15 & 4 & 2 \\ -9 & 8 & -6 & -3 \\ 3 & 3 & 3 & -1 \\ 7 & 0 & -3 & 8 \end{pmatrix} + \frac{\sqrt{5}}{40} \begin{pmatrix} -5 & -33 & -10 & -14 \\ 21 & -18 & 14 & 13 \\ -3 & -7 & -7 & 13 \\ -15 & 0 & 5 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

512. Orbit 512 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & -8 & 18 & 17 \\ -4 & 65 & -25 & 12 \\ -23 & 4 & 44 & -37 \\ -22 & -25 & -29 & 40 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 4 & -8 & -9 \\ 2 & -29 & 11 & -4 \\ 11 & -2 & -20 & 19 \\ 10 & 11 & 13 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

513. Orbit 513 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 36 & 94 & 52 \\ -18 & -36 & -29 & 53 \\ 39 & 58 & 40 & -9 \\ 43 & 36 & 11 & -170 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -16 & -42 & -24 \\ 8 & 16 & 13 & -23 \\ -17 & -26 & -18 & 5 \\ -19 & -16 & -5 & 76 \end{pmatrix}$$

and $rank(A) = 4$.

514. Orbit 514 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & 7 & 7 & 3 \\ 0 & -7 & 18 & 1 \\ -5 & 15 & 0 & 0 \\ -4 & 7 & 11 & -36 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & -3 & -3 & -3 \\ 0 & 3 & -8 & 1 \\ 3 & -7 & 0 & 2 \\ 2 & -3 & -5 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

515. Orbit 515 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & 29 & -29 & 23 \\ -11 & 11 & 11 & -5 \\ -26 & 4 & -18 & -20 \\ 0 & 0 & 22 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & -13 & 13 & -11 \\ 5 & -5 & -5 & 3 \\ 12 & -2 & 8 & 10 \\ 0 & 0 & -10 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

516. Orbit 516 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -8 & -9 & 17 & -14 \\ 34 & -51 & 43 & 40 \\ 7 & 44 & -34 & -5 \\ -35 & 34 & 78 & -181 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 2 & 5 & -7 & -2 \\ -14 & 21 & -19 & -10 \\ 1 & -22 & 14 & 15 \\ 17 & -14 & -36 & 81 \end{pmatrix}$$

and $rank(A) = 4$.

517. Orbit 517 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 58 & -18 & -47 & 59 \\ -22 & -43 & -18 & -5 \\ -44 & -3 & -7 & -20 \\ 36 & 0 & 22 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -26 & 8 & 21 & -27 \\ 10 & 19 & 8 & 3 \\ 20 & 1 & 3 & 10 \\ -16 & 0 & -10 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

518. Orbit 518 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -8 & -9 & 17 & -14 \\ 120 & -69 & -77 & 40 \\ -79 & 44 & 18 & -5 \\ -69 & -18 & -60 & -319 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 2 & 5 & -7 & -2 \\ -52 & 31 & 33 & -10 \\ 39 & -22 & -10 & 15 \\ 31 & 10 & 26 & 143 \end{pmatrix}$$

and $rank(A) = 4$.

519. Orbit 519 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 6 & -19 & -102 & 23 \\ 45 & -102 & -96 & 15 \\ -50 & 44 & -7 & 93 \\ -51 & 77 & -13 & 13 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -4 & 9 & 46 & -19 \\ -19 & 46 & 42 & 1 \\ 26 & -22 & 1 & -29 \\ 23 & -33 & 5 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

520. Orbit 520 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 18 & -16 & 5 \\ -6 & 5 & 19 & -2 \\ 3 & -4 & 4 & -5 \\ -8 & 7 & 11 & -32 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 15 & -40 & 36 & -15 \\ 14 & -11 & -43 & 8 \\ -5 & 8 & -10 & 17 \\ 18 & -15 & -25 & 72 \end{pmatrix}$$

and $rank(A) = 4$.

521. Orbit 521 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 18 & 40 & -24 \\ -40 & 47 & -36 & -23 \\ 32 & 22 & 15 & 9 \\ 18 & -29 & -25 & 94 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -8 & -18 & 10 \\ 18 & -21 & 16 & 11 \\ -14 & -10 & -7 & -3 \\ -8 & 13 & 11 & -42 \end{pmatrix}$$

and $rank(A) = 4$.

522. Orbit 522 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -13 & 83 & -32 & -2 \\ -63 & 20 & 0 & 9 \\ 65 & 13 & 51 & 3 \\ -25 & -12 & -45 & -44 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 5 & -37 & 14 & -6 \\ 31 & -6 & 0 & 5 \\ -25 & -5 & -23 & 9 \\ 13 & 8 & 19 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

523. Orbit 523 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -29 & 36 & -11 & -8 \\ -11 & 51 & 14 & -14 \\ -12 & 4 & -40 & 0 \\ -22 & -11 & -7 & 40 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 13 & -16 & 5 & 2 \\ 5 & -23 & -6 & 8 \\ 6 & -2 & 18 & 2 \\ 10 & 5 & 3 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

524. Orbit 524 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -47 & -29 & 0 & -24 \\ 0 & -36 & -22 & -16 \\ -26 & 11 & 0 & -9 \\ 7 & 18 & -36 & 105 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 21 & 13 & 0 & 10 \\ 0 & 16 & 10 & 8 \\ 12 & -5 & 0 & 5 \\ -3 & -8 & 16 & -47 \end{pmatrix}$$

and $rank(A) = 4$.

525. Orbit 525 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 76 & 36 & -29 & 5 \\ -18 & 40 & 18 & 24 \\ 68 & 11 & -36 & -9 \\ -4 & -87 & 11 & -94 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -34 & -16 & 13 & -3 \\ 8 & -18 & -8 & -10 \\ -30 & -5 & 16 & 5 \\ 2 & 39 & -5 & 42 \end{pmatrix}$$

and $rank(A) = 4$.

526. Orbit 526 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 6 & 5 & 3 & 2 \\ 0 & 6 & -6 & 0 \\ -2 & -2 & 5 & 1 \\ 0 & 3 & 4 & -9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -14 & -11 & -7 & -8 \\ 0 & -14 & 14 & 4 \\ 6 & 4 & -11 & 3 \\ 0 & -7 & -10 & 19 \end{pmatrix}$$

and $rank(A) = 4$.

527. Orbit 527 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 40 & -18 & 12 \\ -22 & -43 & -18 & -5 \\ -15 & -3 & 40 & -38 \\ -11 & 0 & -54 & 65 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -18 & 8 & -6 \\ 10 & 19 & 8 & 3 \\ 7 & 1 & -18 & 18 \\ 5 & 0 & 24 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

528. Orbit 528 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 58 & 11 & -43 & 12 \\ 7 & -25 & -18 & -52 \\ -62 & -3 & 22 & -9 \\ -11 & 69 & -25 & 141 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -26 & -5 & 19 & -6 \\ -3 & 11 & 8 & 24 \\ 28 & 1 & -10 & 5 \\ 5 & -31 & 11 & -63 \end{pmatrix}$$

and $rank(A) = 4$.

529. Orbit 529 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 29 & -18 & 5 \\ -18 & 29 & 25 & -16 \\ 3 & -7 & -36 & 2 \\ 7 & 29 & -7 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -13 & 8 & -3 \\ 8 & -13 & -11 & 8 \\ -1 & 3 & 16 & 0 \\ -3 & -13 & 3 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

530. Orbit 530 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 6 & 8 & 5 & -3 \\ -6 & 8 & 1 & 3 \\ -8 & -2 & -15 & 11 \\ 0 & 8 & 1 & 7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -14 & -18 & -11 & 3 \\ 14 & -18 & -3 & -3 \\ 20 & 4 & 33 & -19 \\ 0 & -18 & -3 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

531. Orbit 531 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & -22 & 11 & 12 \\ 18 & -4 & -32 & 2 \\ -22 & -11 & 51 & 2 \\ -11 & -7 & -22 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & 10 & -5 & -6 \\ -8 & 2 & 14 & 0 \\ 10 & 5 & -23 & 0 \\ 5 & 3 & 10 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

532. Orbit 532 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 40 & -44 & -7 & 5 \\ 0 & -69 & -43 & -34 \\ 7 & -29 & -7 & 13 \\ -11 & 40 & 7 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & 20 & 3 & -3 \\ 0 & 31 & 19 & 16 \\ -3 & 13 & 3 & -5 \\ 5 & -18 & -3 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

533. Orbit 533 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 47 & 0 & 23 \\ -18 & 58 & 7 & -5 \\ 10 & -18 & -18 & 2 \\ -4 & -29 & 11 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -21 & 0 & -11 \\ 8 & -26 & -3 & 3 \\ -4 & 8 & 8 & 0 \\ 2 & 13 & -5 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

534. Orbit 534 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 29 & -22 & -11 & -8 \\ 29 & -25 & 18 & 12 \\ 13 & 15 & -7 & -11 \\ -15 & -4 & 22 & -83 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -13 & 10 & 5 & 2 \\ -13 & 11 & -8 & -4 \\ -5 & -7 & 3 & 7 \\ 7 & 2 & -10 & 37 \end{pmatrix}$$

and $rank(A) = 4$.

535. Orbit 535 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -54 & 18 & -2 \\ 47 & -47 & 11 & 31 \\ 14 & 22 & -94 & 20 \\ 29 & -29 & 29 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 24 & -8 & 0 \\ -21 & 21 & -5 & -13 \\ -6 & -10 & 42 & -8 \\ -13 & 13 & -13 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

536. Orbit 536 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 58 & -54 & -3 & -13 \\ 7 & -130 & 47 & -12 \\ -62 & -43 & 47 & -74 \\ -11 & 69 & -25 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -26 & 24 & 1 & 5 \\ -3 & 58 & -21 & 6 \\ 28 & 19 & -21 & 34 \\ 5 & -31 & 11 & -5 \end{pmatrix}
$$

and $rank(A) = 4$.

537. Orbit 537 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} -7 & 29 & 7 & 1 \\ 18 & 22 & 21 & -27 \\ -22 & 11 & -15 & 2 \\ 11 & 40 & 7 & -58 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & -13 & -3 & -1 \\ -8 & -10 & -9 & 13 \\ 10 & -5 & 7 & 0 \\ -5 & -18 & -3 & 26 \end{pmatrix}
$$

and $rank(A) = 4$.

538. Orbit 538 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} -11 & -36 & 18 & -13 \\ 0 & -18 & 11 & 13 \\ 32 & 33 & -36 & -9 \\ 29 & -29 & 29 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 5 & 16 & -8 & 5 \\ 0 & 8 & -5 & -5 \\ -14 & -15 & 16 & 5 \\ -13 & 13 & -13 & 13 \end{pmatrix}
$$

and $rank(A) = 4$.

539. Orbit 539 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8}\begin{pmatrix} -14 & 18 & -11 & 9 \\ -11 & 23 & 0 & -14 \\ -15 & -9 & -4 & -18 \\ -4 & -8 & -7 & -39 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 6 & -8 & 5 & -5 \\ 5 & -11 & 0 & 8 \\ 7 & 3 & 2 & 10 \\ 2 & 4 & 3 & 17 \end{pmatrix}
$$

and $rank(A) = 4$.

540. Orbit 540 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 5 & -5 & -5 & -1 \\ 2 & -7 & 5 & 0 \\ -5 & 2 & 5 & -4 \\ 0 & 8 & 1 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -11 & 11 & 11 & -1 \\ -4 & 15 & -11 & 4 \\ 13 & -6 & -11 & 14 \\ 0 & -18 & -3 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

541. Orbit 541 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & -18 & 18 & -8 \\ 25 & -47 & 33 & 1 \\ -16 & 22 & -36 & -4 \\ 29 & 29 & 15 & -51 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & 8 & -8 & 2 \\ -11 & 21 & -15 & 1 \\ 8 & -10 & 16 & 4 \\ -13 & -13 & -7 & 23 \end{pmatrix}$$

and $rank(A) = 4$.

542. Orbit 542 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -25 & 11 & -11 & 21 \\ 7 & 18 & -14 & 1 \\ -16 & -7 & -18 & 7 \\ -18 & 0 & 15 & 25 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 11 & -5 & 5 & -11 \\ -3 & -8 & 6 & 1 \\ 8 & 3 & 8 & -1 \\ 8 & 0 & -7 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

543. Orbit 543 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & -51 & 0 & -24 \\ -11 & -7 & 0 & -12 \\ -19 & -7 & 72 & 16 \\ -11 & 29 & 0 & 170 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 23 & 0 & 10 \\ 5 & 3 & 0 & 6 \\ 9 & 3 & -32 & -6 \\ 5 & -13 & 0 & -76 \end{pmatrix}$$

and $rank(A) = 4$.

544. Orbit 544 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 5 & -3 & -4 \\ -8 & 13 & -1 & -4 \\ 3 & 2 & 6 & 1 \\ -3 & -2 & -4 & 11 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -11 & 7 & 6 \\ 18 & -29 & 3 & 12 \\ -5 & -6 & -12 & 3 \\ 7 & 4 & 8 & -25 \end{pmatrix}$$

and $rank(A) = 4$.

545. Orbit 545 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & -29 & -58 & -24 \\ 30 & -40 & 11 & -45 \\ -4 & -36 & -7 & -19 \\ -15 & 11 & -18 & 58 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & 13 & 26 & 10 \\ -14 & 18 & -5 & 21 \\ 2 & 16 & 3 & 9 \\ 7 & -5 & 8 & -26 \end{pmatrix}$$

and $rank(A) = 4$.

546. Orbit 546 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 29 & -76 & -53 \\ 0 & -29 & 18 & -41 \\ -30 & 29 & -18 & 9 \\ -22 & 29 & -18 & 141 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -13 & 34 & 23 \\ 0 & 13 & -8 & 19 \\ 14 & -13 & 8 & -3 \\ 10 & -13 & 8 & -63 \end{pmatrix}$$

and $rank(A) = 4$.

547. Orbit 547 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & -1 & 18 & 10 \\ -4 & 1 & -13 & 14 \\ 13 & 11 & 1 & 5 \\ 6 & -1 & 6 & -39 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & 3 & -40 & -26 \\ 8 & -3 & 29 & -28 \\ -27 & -25 & -3 & -7 \\ -12 & 3 & -14 & 87 \end{pmatrix}$$

and $rank(A) = 4$.

548. Orbit 548 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 22 & -29 & -40 & -17 \\ 18 & 4 & 18 & -12 \\ 3 & -14 & -18 & 27 \\ 7 & -33 & 4 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -10 & 13 & 18 & 7 \\ -8 & -2 & -8 & 6 \\ -1 & 6 & 8 & -11 \\ -3 & 15 & -2 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

549. Orbit 549 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 44 & -14 & 0 & 16 \\ 0 & -11 & 7 & -12 \\ 14 & -29 & -18 & -5 \\ 14 & -4 & -25 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -20 & 6 & 0 & -8 \\ 0 & 5 & -3 & 6 \\ -6 & 13 & 8 & 3 \\ -6 & 2 & 11 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

550. Orbit 550 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{76} \begin{pmatrix} -39 & 23 & -124 & 26 \\ 9 & -69 & 23 & -33 \\ 82 & 55 & -16 & 1 \\ 16 & -23 & -39 & 32 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} 17 & -11 & 56 & -24 \\ -1 & 33 & -11 & 29 \\ -26 & -23 & 6 & 21 \\ -6 & 11 & 17 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

551. Orbit 551 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 76 & 0 & 5 \\ -40 & 152 & -7 & 53 \\ -8 & -65 & -18 & 45 \\ -47 & -47 & -25 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & -34 & 0 & -3 \\ 18 & -68 & 3 & -23 \\ 4 & 29 & 8 & -19 \\ 21 & 21 & 11 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

552. Orbit 552 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 1 & 60 & 61 & 4 \\ 17 & 26 & -9 & -20 \\ 33 & 26 & -43 & 30 \\ 17 & -26 & -25 & 52 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -3 & -26 & -29 & -12 \\ -7 & -12 & 5 & 16 \\ -11 & -12 & 19 & -2 \\ -7 & 12 & 9 & -24 \end{pmatrix}$$

and $rank(A) = 4$.

553. Orbit 553 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 8 & -54 & -3 & -11 \\ -40 & -58 & -15 & 1 \\ 17 & -29 & 0 & 0 \\ 7 & 11 & -32 & 22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -4 & 24 & 1 & 3 \\ 18 & 26 & 7 & 1 \\ -7 & 13 & 0 & 2 \\ -3 & -5 & 14 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

554. Orbit 554 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -10 & 10 & 4 & 6 \\ 8 & 10 & 11 & 5 \\ -1 & 4 & 0 & 15 \\ -25 & 10 & 15 & 22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 4 & -4 & -2 & -4 \\ -4 & -4 & -5 & -1 \\ 1 & -2 & 0 & -5 \\ 11 & -4 & -7 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

555. Orbit 555 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 1 & 18 & 22 & -15 \\ 7 & 0 & -11 & 16 \\ 13 & 29 & -7 & 25 \\ 7 & -11 & -10 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -1 & -8 & -10 & 5 \\ -3 & 0 & 5 & -6 \\ -5 & -13 & 3 & -9 \\ -3 & 5 & 4 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

556. Orbit 556 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -22 & 11 & 26 \\ 36 & -36 & 0 & -30 \\ -5 & 14 & -18 & -23 \\ -10 & -14 & -29 & -83 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 10 & -5 & -12 \\ -16 & 16 & 0 & 14 \\ 3 & -6 & 8 & 11 \\ 4 & 6 & 13 & 37 \end{pmatrix}$$

and $rank(A) = 4$.

557. Orbit 557 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & -5 & -5 & -1 \\ 12 & -9 & 10 & 9 \\ 5 & 7 & -4 & -2 \\ 6 & 11 & -7 & -12 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & 11 & 11 & -1 \\ -26 & 19 & -22 & -17 \\ -9 & -17 & 10 & 10 \\ -14 & -25 & 15 & 26 \end{pmatrix}$$

and $rank(A) = 4$.

558. Orbit 558 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & 18 & -1 & -4 \\ 14 & 4 & -3 & -3 \\ -26 & 4 & 18 & 8 \\ 7 & 4 & 8 & 11 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & -8 & 1 & 0 \\ -6 & -2 & 1 & 3 \\ 12 & -2 & -8 & -2 \\ -3 & -2 & -4 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

559. Orbit 559 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -25 & 0 & -18 & -5 \\ -4 & -14 & 21 & 1 \\ 13 & 8 & -33 & 0 \\ 0 & 0 & -28 & 8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 11 & 0 & 8 & 1 \\ 2 & 6 & -9 & 1 \\ -5 & -4 & 15 & 2 \\ 0 & 0 & 12 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

560. Orbit 560 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 4 & 0 & 1 & 7 \\ 3 & 4 & 1 & 4 \\ -2 & -3 & -13 & 0 \\ -1 & -7 & 3 & -29 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -2 & 0 & -1 & -5 \\ -1 & -2 & -1 & 0 \\ 2 & 1 & 5 & 2 \\ 1 & 3 & -3 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

561. Orbit 561 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 8 & 4 & -11 & -5 \\ -7 & 15 & 7 & -17 \\ -4 & -3 & 14 & -17 \\ -5 & 6 & -10 & -35 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -4 & -2 & 5 & 1 \\ 3 & -7 & -3 & 9 \\ 2 & 1 & -6 & 9 \\ 3 & -2 & 4 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

562. Orbit 562 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & -11 & 25 & -17 \\ 25 & -11 & -33 & 17 \\ 3 & 11 & 3 & -27 \\ 11 & 11 & -3 & 69 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 5 & -11 & 7 \\ -11 & 5 & 15 & -7 \\ -1 & -5 & -1 & 13 \\ -5 & -5 & 1 & -31 \end{pmatrix}$$

and $rank(A) = 4$.

563. Orbit 563 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 36 & 0 & 0 & -6 \\ 11 & -18 & 7 & 6 \\ -1 & 11 & -18 & -16 \\ -4 & -29 & 11 & -94 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -16 & 0 & 0 & 2 \\ -5 & 8 & -3 & -2 \\ 1 & -5 & 8 & 8 \\ 2 & 13 & -5 & 42 \end{pmatrix}$$

and $rank(A) = 4$.

564. Orbit 564 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 11 & 43 & -22 & 34 \\ 11 & 29 & -36 & 46 \\ 3 & -29 & -22 & -34 \\ -25 & -43 & 80 & 170 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & -19 & 10 & -16 \\ -5 & -13 & 16 & -20 \\ -1 & 13 & 10 & 16 \\ 11 & 19 & -36 & -76 \end{pmatrix}
$$

and $rank(A) = 4$.

565. Orbit 565 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} -2 & 4 & -9 & 5 \\ -2 & -5 & 6 & -1 \\ 0 & -3 & -1 & 0 \\ 4 & 4 & 4 & -8 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & -8 & 21 & -15 \\ 4 & 11 & -14 & 5 \\ 2 & 7 & 3 & 4 \\ -10 & -10 & -10 & 18 \end{pmatrix}
$$

and $rank(A) = 4$.

566. Orbit 566 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 3 & -5 & -2 & 4 \\ 8 & -7 & -5 & 0 \\ 4 & -4 & 6 & 4 \\ -5 & 4 & -1 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -7 & 11 & 4 & -12 \\ -18 & 15 & 11 & 4 \\ -8 & 8 & -14 & -4 \\ 11 & -10 & 1 & 8 \end{pmatrix}
$$

and $rank(A) = 4$.

567. Orbit 567 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 58 & -47 & 87 & 12 \\ 29 & -25 & -18 & -16 \\ -40 & -25 & 58 & -9 \\ 11 & 33 & 33 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -26 & 21 & -39 & -6 \\ -13 & 11 & 8 & 8 \\ 18 & 11 & -26 & 5 \\ -5 & -15 & -15 & 11 \end{pmatrix}
$$

and $rank(A) = 4$.

568. Orbit 568 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 8 & -7 & 4 & -1 \\ -4 & 4 & 4 & -6 \\ -5 & 22 & -10 & -3 \\ 21 & 11 & 12 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -4 & 3 & -2 & -1 \\ 2 & -2 & -2 & 4 \\ 3 & -10 & 4 & 3 \\ -9 & -5 & -6 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

569. Orbit 569 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -17 & -7 & -22 & 6 \\ 7 & -10 & 0 & 1 \\ 6 & 8 & -14 & 4 \\ 10 & 3 & -14 & 7 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 7 & 3 & 10 & -4 \\ -3 & 4 & 0 & 1 \\ -2 & -4 & 6 & 0 \\ -4 & -1 & 6 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

570. Orbit 570 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & 29 & 29 & 17 \\ 14 & 11 & -15 & -6 \\ -27 & 4 & 7 & -4 \\ 18 & 0 & 37 & -61 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & -13 & -13 & -9 \\ -6 & -5 & 7 & 4 \\ 13 & -2 & -3 & 4 \\ -8 & 0 & -17 & 27 \end{pmatrix}$$

and $rank(A) = 4$.

571. Orbit 571 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & -18 & 7 & 8 \\ 25 & -40 & 43 & 6 \\ 3 & 18 & -1 & 20 \\ 11 & -18 & -21 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 8 & -3 & -4 \\ -11 & 18 & -19 & -2 \\ -1 & -8 & 1 & -8 \\ -5 & 8 & 9 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

572. Orbit 572 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 10 & -3 & -1 \\ -2 & 7 & 4 & -3 \\ -4 & 3 & -1 & 0 \\ 4 & 4 & 2 & -2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & -22 & 7 & -1 \\ 4 & -17 & -8 & 11 \\ 10 & -7 & 3 & 4 \\ -10 & -10 & -4 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

573. Orbit 573 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & 5 & -8 & 4 \\ 0 & -6 & 4 & -2 \\ 18 & 3 & 2 & 1 \\ 1 & 6 & -2 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & -11 & 18 & -12 \\ -2 & 12 & -10 & 8 \\ -38 & -7 & -4 & 1 \\ -3 & -14 & 4 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

574. Orbit 574 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -36 & -14 & 22 & -4 \\ -11 & 86 & 18 & -25 \\ -37 & -14 & -25 & -14 \\ 18 & 0 & 29 & 47 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 16 & 6 & -10 & 0 \\ 5 & -38 & -8 & 13 \\ 17 & 6 & 11 & 8 \\ -8 & 0 & -13 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

575. Orbit 575 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 8 & 8 & 2 & -4 \\ -6 & 3 & 12 & 11 \\ -15 & 1 & -10 & 10 \\ 11 & 0 & 0 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -18 & -18 & -4 & 6 \\ 14 & -7 & -26 & -21 \\ 35 & -3 & 24 & -18 \\ -25 & 0 & -2 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

576. Orbit 576 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 10 & 5 & 5 & -4 \\ 3 & 17 & 5 & 1 \\ -2 & -4 & 5 & -11 \\ -1 & 0 & -3 & -18 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -4 & -1 & -3 & 0 \\ -1 & -7 & -3 & 1 \\ 2 & 2 & -3 & 7 \\ 1 & 0 & 1 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

577. Orbit 577 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & 14 & -8 & -12 \\ 6 & -4 & -3 & 5 \\ 20 & -11 & 1 & 0 \\ -8 & 7 & 4 & -19 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & -6 & 4 & 4 \\ -2 & 2 & 1 & -1 \\ -8 & 5 & -1 & 2 \\ 4 & -3 & -2 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

578. Orbit 578 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & 15 & 1 & -5 \\ 4 & 3 & 14 & 5 \\ -16 & 12 & -3 & 5 \\ 17 & 8 & -10 & -29 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & -7 & -1 & 1 \\ -2 & -1 & -6 & -1 \\ 8 & -6 & 1 & -1 \\ -7 & -4 & 4 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

579. Orbit 579 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 44 & 0 & -95 & 3 \\ -8 & -17 & 34 & 5 \\ 146 & 9 & -69 & -56 \\ -42 & 26 & -26 & 10 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -22 & 0 & 43 & -9 \\ 2 & 7 & -14 & 7 \\ -64 & -5 & 31 & 36 \\ 16 & -12 & 12 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

580. Orbit 580 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -29 & -29 & 29 & -35 \\ 0 & -18 & 11 & -23 \\ -19 & 0 & 18 & -9 \\ 4 & 11 & -36 & -123 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 13 & 13 & -13 & 15 \\ 0 & 8 & -5 & 11 \\ 9 & 0 & -8 & 5 \\ -2 & -5 & 16 & 55 \end{pmatrix}$$

and $rank(A) = 4$.

581. Orbit 581 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{16}\begin{pmatrix} 7 & 6 & -17 & -6 \\ -4 & -4 & 12 & -2 \\ 14 & 5 & 7 & 18 \\ 3 & 13 & -6 & 6 \end{pmatrix} + \frac{\sqrt{5}}{16}\begin{pmatrix} -3 & -2 & 7 & 0 \\ 2 & 2 & -6 & 4 \\ -6 & -3 & -3 & -4 \\ -1 & -5 & 2 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

582. Orbit 582 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 8 & 4 & -3 & -5 \\ -7 & 12 & 8 & 1 \\ -4 & 4 & -4 & 8 \\ 3 & -4 & 15 & 8 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -4 & -2 & 1 & 1 \\ 3 & -6 & -4 & 1 \\ 2 & -2 & 2 & -2 \\ -1 & 2 & -7 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

583. Orbit 583 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -29 & 7 & 29 & 23 \\ 22 & -36 & 0 & -30 \\ 39 & 11 & -11 & -5 \\ 10 & -18 & -18 & -54 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 13 & -3 & -13 & -11 \\ -10 & 16 & 0 & 14 \\ -17 & -5 & 5 & 3 \\ -4 & 8 & 8 & 24 \end{pmatrix}$$

and $rank(A) = 4$.

584. Orbit 584 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{44} \begin{pmatrix} 0 & 58 & -19 & 49 \\ -32 & 13 & -7 & 2 \\ 7 & -7 & -5 & -17 \\ -13 & -12 & -33 & -84 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 0 & -24 & 9 & -29 \\ 14 & -5 & 1 & 6 \\ -1 & 1 & 7 & 15 \\ 5 & 8 & 11 & 34 \end{pmatrix}
$$

and $rank(A) = 4$.

585. Orbit 585 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -3 & 10 & -15 & 0 \\ -1 & 17 & -9 & -9 \\ 6 & 5 & 5 & -6 \\ 4 & -2 & 3 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & -22 & 33 & -2 \\ 3 & -39 & 19 & 23 \\ -12 & -13 & -11 & 18 \\ -8 & 4 & -9 & -7 \end{pmatrix}
$$

and $rank(A) = 4$.

586. Orbit 586 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} 0 & -2 & -1 & 1 \\ -3 & -9 & 0 & 0 \\ -4 & -4 & -3 & -5 \\ 5 & -3 & 2 & -2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & 4 & 3 & -5 \\ 7 & 19 & 2 & 4 \\ 10 & 8 & 7 & 15 \\ -11 & 7 & -6 & 4 \end{pmatrix}
$$

and $rank(A) = 4$.

587. Orbit 587 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -105 & 7 & 0 & -24 \\ -25 & -36 & -18 & -59 \\ 39 & 11 & -11 & -5 \\ -55 & -18 & 29 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 47 & -3 & 0 & 10 \\ 11 & 16 & 8 & 27 \\ -17 & -5 & 5 & 3 \\ 25 & 8 & -13 & -10 \end{pmatrix}
$$

and $rank(A) = 4$.

588. Orbit 588 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 54 & -40 & 12 \\ -25 & 0 & 40 & -1 \\ -8 & 7 & -4 & -5 \\ 15 & 33 & 4 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -24 & 18 & -6 \\ 11 & 0 & -18 & 1 \\ 4 & -3 & 2 & 3 \\ -7 & -15 & -2 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

589. Orbit 589 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -33 & -14 & 54 & -35 \\ 11 & -18 & -65 & 6 \\ -55 & -3 & 25 & -41 \\ 25 & -7 & 36 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 15 & 6 & -24 & 15 \\ -5 & 8 & 29 & -2 \\ 25 & 1 & -11 & 19 \\ -11 & 3 & -16 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

590. Orbit 590 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 50 & -3 & -73 & 48 \\ -7 & -7 & 87 & -1 \\ 68 & 8 & -51 & 39 \\ -33 & 4 & -51 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -22 & 1 & 33 & -22 \\ 3 & 3 & -39 & 1 \\ -30 & -4 & 23 & -17 \\ 15 & -2 & 23 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

591. Orbit 591 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -1 & -6 & 3 & 0 \\ -14 & -7 & 4 & 7 \\ -13 & -2 & -1 & -4 \\ 10 & -3 & 14 & -7 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & 2 & -1 & -2 \\ 6 & 3 & -2 & -1 \\ 7 & 0 & 1 & 4 \\ -4 & 1 & -6 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

592. Orbit 592 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & -5 & 8 & 4 \\ -10 & 10 & -22 & -2 \\ -18 & -3 & 12 & 1 \\ 1 & 6 & -2 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -7 & 11 & -18 & -12 \\ 20 & -24 & 48 & 8 \\ 42 & 7 & -26 & 1 \\ -3 & -14 & 4 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

593. Orbit 593 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -40 & -36 & 7 & 27 \\ 3 & 18 & -15 & -10 \\ 20 & -25 & -1 & -36 \\ -15 & -7 & -21 & -65 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 18 & 16 & -3 & -13 \\ -1 & -8 & 7 & 6 \\ -8 & 11 & 1 & 18 \\ 7 & 3 & 9 & 29 \end{pmatrix}$$

and $rank(A) = 4$.

594. Orbit 594 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & -18 & 36 & 19 \\ 7 & 18 & -22 & -5 \\ 21 & -18 & 14 & -27 \\ 7 & -18 & -14 & -47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & 8 & -16 & -9 \\ -3 & -8 & 10 & 3 \\ -9 & 8 & -6 & 13 \\ -3 & 8 & 6 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

595. Orbit 595 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & -10 & 8 & -9 \\ -1 & -4 & -8 & 1 \\ 13 & 4 & 14 & 15 \\ -1 & 10 & -8 & -19 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & 4 & -4 & 3 \\ 1 & 2 & 4 & 1 \\ -5 & -2 & -6 & -5 \\ 1 & -4 & 4 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

596. Orbit 596 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 21 & -18 & 14 & 13 \\ 4 & -18 & 4 & 16 \\ -2 & -2 & 3 & 5 \\ 3 & 4 & 15 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -9 & 8 & -6 & -7 \\ -2 & 8 & -2 & -6 \\ 2 & 0 & -1 & -1 \\ -1 & -2 & -7 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

597. Orbit 597 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 36 & 7 & 18 & -17 \\ 0 & -22 & -22 & 6 \\ 36 & 11 & -29 & 24 \\ 14 & 10 & 25 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -16 & -3 & -8 & 7 \\ 0 & 10 & 10 & -2 \\ -16 & -5 & 13 & -10 \\ -6 & -4 & -11 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

598. Orbit 598 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -4 & 43 & -11 & -34 \\ -18 & 21 & 3 & 12 \\ -4 & -7 & -11 & 12 \\ -48 & -9 & 3 & -28 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 2 & -19 & 5 & 14 \\ 8 & -9 & -1 & -4 \\ 2 & 3 & 5 & -4 \\ 22 & 5 & -1 & 12 \end{pmatrix}$$

and $rank(A) = 4$.

599. Orbit 599 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 14 & 3 & 15 & 12 \\ -11 & 25 & 33 & -19 \\ -15 & -11 & 4 & 6 \\ -4 & -11 & 22 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -6 & -1 & -7 & -6 \\ 5 & -11 & -15 & 9 \\ 7 & 5 & -2 & -2 \\ 2 & 5 & -10 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

600. Orbit 600 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 25 & -15 & -14 & 12 \\ -18 & 14 & 15 & -5 \\ 7 & -11 & -18 & 6 \\ 36 & 18 & 11 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -11 & 7 & 6 & -6 \\ 8 & -6 & -7 & 3 \\ -3 & 5 & 8 & -2 \\ -16 & -8 & -5 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

601. Orbit 601 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -29 & 18 & 0 & -17 \\ 0 & 11 & -7 & -12 \\ -19 & 0 & 18 & -9 \\ 4 & -7 & -25 & -58 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 13 & -8 & 0 & 7 \\ 0 & -5 & 3 & 6 \\ 9 & 0 & -8 & 5 \\ -2 & 3 & 11 & 26 \end{pmatrix}$$

and $rank(A) = 4$.

602. Orbit 602 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -11 & 47 & -47 & 41 \\ -18 & 29 & 11 & 6 \\ -1 & 0 & -11 & 2 \\ -14 & -18 & 11 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 5 & -21 & 21 & -19 \\ 8 & -13 & -5 & -2 \\ 1 & 0 & 5 & 0 \\ 6 & 8 & -5 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

603. Orbit 603 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 7 & -76 & 0 & -17 \\ 0 & -76 & -11 & -23 \\ 17 & 18 & 29 & -16 \\ 32 & 18 & -18 & 112 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -3 & 34 & 0 & 7 \\ 0 & 34 & 5 & 11 \\ -7 & -8 & -13 & 8 \\ -14 & -8 & 8 & -50 \end{pmatrix}$$

and $rank(A) = 4$.

604. Orbit 604 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 11 & -14 & -5 \\ -7 & 1 & 15 & -3 \\ -11 & -14 & -4 & -3 \\ -8 & -4 & -3 & 1 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -5 & 6 & 1 \\ 3 & -1 & -7 & 3 \\ 5 & 6 & 2 & 3 \\ 4 & 2 & 1 & -1 \end{pmatrix}$$

and $rank(A) = 4$.

605. Orbit 605 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & -3 & -15 & -16 \\ 3 & 19 & -11 & 1 \\ -1 & 5 & -4 & 4 \\ 4 & -11 & 8 & 29 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & 1 & 7 & 6 \\ -1 & -9 & 5 & 1 \\ 1 & -3 & 2 & 0 \\ -2 & 5 & -4 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

606. Orbit 606 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -11 & 29 & 12 \\ 40 & 11 & 0 & -1 \\ -19 & 11 & -11 & -5 \\ -1 & 11 & -18 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 5 & -13 & -6 \\ -18 & -5 & 0 & 1 \\ 9 & -5 & 5 & 3 \\ 1 & -5 & 8 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

607. Orbit 607 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -14 & -76 & 105 & 9 \\ 76 & 0 & 65 & 17 \\ -33 & -7 & 0 & 2 \\ -15 & 11 & 40 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 6 & 34 & -47 & -5 \\ -34 & 0 & -29 & -7 \\ 15 & 3 & 0 & 0 \\ 7 & -5 & -18 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

608. Orbit 608 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 8 & 3 & 3 \\ -3 & 2 & 0 & 1 \\ 2 & 8 & 2 & -2 \\ -5 & -2 & -5 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -18 & -5 & -11 \\ 7 & -4 & 0 & 1 \\ -4 & -18 & -4 & 8 \\ 11 & 4 & 9 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

609. Orbit 609 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 3 & 15 & -22 & -16 \\ -7 & 22 & 11 & -6 \\ 20 & 5 & -1 & 8 \\ -26 & 4 & -4 & 18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -1 & -7 & 10 & 6 \\ 3 & -10 & -5 & 4 \\ -8 & -3 & 1 & -2 \\ 12 & -2 & 2 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

610. Orbit 610 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & -12 & -6 & -1 \\ 6 & -2 & 11 & 3 \\ 3 & 4 & -9 & 10 \\ 2 & -2 & 2 & -2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & 26 & 14 & -1 \\ -14 & 4 & -25 & -3 \\ -5 & -10 & 21 & -18 \\ -4 & 4 & -4 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

611. Orbit 611 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & -36 & 11 & 6 \\ -20 & 30 & -50 & -10 \\ -77 & -22 & 32 & -17 \\ 4 & 22 & -7 & -47 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 16 & -5 & -4 \\ 8 & -14 & 22 & 6 \\ 35 & 10 & -14 & 9 \\ -2 & -10 & 3 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

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612. Orbit 612 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 36 & 29 & 18 & -17 \\ 29 & -29 & 7 & 35 \\ -26 & 15 & 3 & 20 \\ 47 & 29 & 22 & 98 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -16 & -13 & -8 & 7 \\ -13 & 13 & -3 & -15 \\ 12 & -7 & -1 & -8 \\ -21 & -13 & -10 & -44 \end{pmatrix}$$

and $rank(A) = 4$.

613. Orbit 613 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -6 & 3 & 2 & -1 \\ 0 & 5 & -3 & -2 \\ 8 & 4 & 3 & -3 \\ 0 & 0 & -4 & 6 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 14 & -7 & -4 & -1 \\ 0 & -11 & 7 & 8 \\ -16 & -10 & -5 & 11 \\ 0 & 0 & 8 & -14 \end{pmatrix}$$

and $rank(A) = 4$.

614. Orbit 614 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 0 & 18 & -11 & 1 \\ -18 & 18 & -40 & -12 \\ 3 & 4 & 29 & -16 \\ 21 & 4 & -14 & 69 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 0 & -8 & 5 & -1 \\ 8 & -8 & 18 & 6 \\ -1 & -2 & -13 & 8 \\ -9 & -2 & 6 & -31 \end{pmatrix}$$

and $rank(A) = 4$.

615. Orbit 615 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -11 & -11 & 25 & 13 \\ 4 & 7 & -11 & -2 \\ 13 & -6 & 11 & -14 \\ 6 & -10 & -3 & 29 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 5 & 5 & -11 & -7 \\ -2 & -3 & 5 & 2 \\ -5 & 2 & -5 & 8 \\ -2 & 4 & 1 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

616. Orbit 616 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 11 & 25 & 3 & -15 \\ 4 & 7 & 3 & 4 \\ -9 & 16 & 11 & 6 \\ 20 & 12 & 5 & 37 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -5 & -11 & -1 & 5 \\ -2 & -3 & -1 & 0 \\ 5 & -8 & -5 & 0 \\ -8 & -6 & -3 & -17 \end{pmatrix}$$

and $rank(A) = 4$.

617. Orbit 617 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 14 & 8 & 22 & -12 \\ -18 & -33 & -22 & 5 \\ -27 & 1 & 8 & 8 \\ 7 & -4 & -22 & -11 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -6 & -4 & -10 & 4 \\ 8 & 15 & 10 & -1 \\ 13 & -1 & -4 & -2 \\ -3 & 2 & 10 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

618. Orbit 618 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 25 & 8 & 4 & -5 \\ 0 & -15 & -4 & -13 \\ 2 & 12 & -10 & 8 \\ 7 & 3 & -4 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -11 & -4 & -2 & 1 \\ 0 & 7 & 2 & 7 \\ 0 & -6 & 4 & -2 \\ -3 & -1 & 2 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

619. Orbit 619 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & 9 & 11 & -6 \\ -5 & 2 & -3 & -4 \\ -8 & 2 & -14 & 0 \\ -3 & -1 & 2 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -4 & -21 & -25 & 10 \\ 11 & -4 & 7 & 12 \\ 20 & -6 & 30 & 4 \\ 7 & 3 & -4 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

620. Orbit 620 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 22 & 7 & 10 & -1 \\ -18 & 18 & 4 & -6 \\ -19 & 8 & 26 & -3 \\ -1 & -3 & 12 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -10 & -3 & -4 & -1 \\ 8 & -8 & -2 & 4 \\ 9 & -4 & -12 & 3 \\ 1 & 1 & -6 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

621. Orbit 621 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 13 & 6 & 19 & 6 \\ -7 & 32 & 30 & -13 \\ -15 & -11 & 4 & -2 \\ -1 & -15 & 15 & -21 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -5 & -2 & -9 & -4 \\ 3 & -14 & -14 & 7 \\ 7 & 5 & -2 & 2 \\ 1 & 7 & -7 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

622. Orbit 622 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 0 & -18 & 1 \\ -36 & -18 & 11 & -1 \\ -12 & -11 & -22 & 13 \\ -21 & -7 & -7 & -65 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 0 & 8 & -1 \\ 16 & 8 & -5 & 1 \\ 6 & 5 & 10 & -5 \\ 9 & 3 & 3 & 29 \end{pmatrix}$$

and $rank(A) = 4$.

623. Orbit 623 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & 18 & -65 & 52 \\ 11 & -18 & 29 & 42 \\ 39 & 18 & -29 & -16 \\ -25 & -18 & 29 & 152 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & -8 & 29 & -24 \\ -5 & 8 & -13 & -18 \\ -17 & -8 & 13 & 8 \\ 11 & 8 & -13 & -68 \end{pmatrix}$$

and $rank(A) = 4$.

624. Orbit 624 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -58 & -29 & -18 & -17 \\ 11 & 29 & 0 & -12 \\ -37 & 29 & -29 & 13 \\ -48 & 29 & 11 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 26 & 13 & 8 & 7 \\ -5 & -13 & 0 & 6 \\ 17 & -13 & 13 & -5 \\ 22 & -13 & -5 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

625. Orbit 625 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 65 & 18 & 0 & 5 \\ -7 & -18 & 0 & 17 \\ 21 & -18 & 36 & -5 \\ 57 & -18 & 0 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -29 & -8 & 0 & -3 \\ 3 & 8 & 0 & -7 \\ -9 & 8 & -16 & 3 \\ -25 & 8 & 0 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

626. Orbit 626 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 14 & 0 & 0 & 16 \\ -29 & 4 & -6 & -13 \\ -4 & -3 & 14 & -17 \\ -11 & -7 & -12 & -18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -6 & 0 & 0 & -8 \\ 13 & -2 & 2 & 7 \\ 2 & 1 & -6 & 9 \\ 5 & 3 & 4 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

627. Orbit 627 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 94 & 51 & -40 & 41 \\ -7 & -36 & 11 & 24 \\ 32 & -25 & -22 & -45 \\ -11 & 40 & -87 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -42 & -23 & 18 & -19 \\ 3 & 16 & -5 & -10 \\ -14 & 11 & 10 & 21 \\ 5 & -18 & 39 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

628. Orbit 628 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & 0 & -7 & 2 \\ -5 & 5 & -6 & -6 \\ -3 & 3 & 7 & -5 \\ 7 & -2 & 2 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -1 & 0 & 17 & -8 \\ 9 & -11 & 12 & 18 \\ 7 & -7 & -15 & 13 \\ -15 & 4 & -6 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

629. Orbit 629 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -18 & -31 & -52 & 11 \\ 19 & -12 & 6 & -49 \\ 26 & -6 & 57 & 53 \\ 1 & 51 & 25 & -1 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 12 & 17 & 20 & -11 \\ -9 & 8 & -4 & 29 \\ -10 & 4 & -27 & -17 \\ 3 & -23 & -13 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

630. Orbit 630 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -22 & 0 & 0 & -28 \\ -76 & -29 & 11 & 6 \\ -41 & -40 & -29 & 42 \\ -21 & 11 & -18 & -130 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 10 & 0 & 0 & 12 \\ 34 & 13 & -5 & -2 \\ 19 & 18 & 13 & -18 \\ 9 & -5 & 8 & 58 \end{pmatrix}$$

and $rank(A) = 4$.

631. Orbit 631 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & 4 & 0 & -17 \\ 19 & -32 & -7 & 6 \\ -4 & 18 & 18 & -12 \\ 22 & 4 & 11 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & -2 & 0 & 7 \\ -9 & 14 & 3 & -2 \\ 2 & -8 & -8 & 6 \\ -10 & -2 & -5 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

632. Orbit 632 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 54 & 66 & -15 & 41 \\ -72 & 4 & 11 & -1 \\ 7 & -25 & 18 & -30 \\ -11 & 15 & -22 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -24 & -30 & 7 & -19 \\ 32 & -2 & -5 & 1 \\ -3 & 11 & -8 & 14 \\ 5 & -7 & 10 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

633. Orbit 633 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 1 & 8 & 16 \\ 10 & -4 & -14 & 8 \\ 14 & 3 & -2 & -9 \\ -1 & 6 & 14 & -33 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -23 & -3 & -18 & -40 \\ -24 & 10 & 32 & -14 \\ -30 & -7 & 4 & 23 \\ 3 & -14 & -32 & 73 \end{pmatrix}$$

and $rank(A) = 4$.

634. Orbit 634 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & -11 & -19 & 2 \\ 3 & -15 & 1 & -11 \\ 1 & 5 & -2 & 2 \\ 6 & -1 & 6 & -13 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 6 & 25 & 43 & -8 \\ -9 & 33 & -3 & 29 \\ -1 & -11 & 4 & -2 \\ -12 & 3 & -14 & 29 \end{pmatrix}$$

and $rank(A) = 4$.

635. Orbit 635 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -11 & -21 & -8 & 6 \\ 11 & 14 & 4 & 5 \\ -5 & 5 & 17 & 1 \\ -3 & -4 & 15 & -14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 5 & 9 & 4 & -4 \\ -5 & -6 & -2 & -1 \\ 3 & -3 & -7 & 1 \\ 1 & 2 & -7 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

636. Orbit 636 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -18 & 29 & 74 \\ 4 & -29 & -47 & 6 \\ -15 & -25 & -40 & -16 \\ 0 & 36 & 0 & -108 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 8 & -13 & -34 \\ -2 & 13 & 21 & -2 \\ 7 & 11 & 18 & 8 \\ 0 & -16 & 0 & 48 \end{pmatrix}$$

and $rank(A) = 4$.

637. Orbit 637 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & 11 & -18 & 30 \\ 7 & 4 & 0 & -5 \\ -15 & 15 & -7 & -9 \\ 7 & 0 & 33 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & -5 & 8 & -14 \\ -3 & -2 & 0 & 3 \\ 7 & -7 & 3 & 5 \\ -3 & 0 & -15 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

638. Orbit 638 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & 0 & -2 & 0 \\ -3 & -1 & -2 & 0 \\ -4 & 3 & -1 & -4 \\ 1 & 2 & -1 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -8 & 0 & 6 & -4 \\ 7 & 3 & 4 & 4 \\ 10 & -7 & 3 & 12 \\ -3 & -4 & 1 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

639. Orbit 639 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -25 & -15 & 0 & -2 \\ 9 & 21 & -37 & -9 \\ -2 & 1 & 18 & 1 \\ -10 & 7 & 11 & -28 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 11 & 7 & 0 & 0 \\ -5 & -9 & 17 & 5 \\ 2 & -1 & -8 & 1 \\ 4 & -3 & -5 & 12 \end{pmatrix}$$

and $rank(A) = 4$.

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640. Orbit 640 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 4 & -18 & -8 \\ 14 & -5 & -7 & 8 \\ -15 & -14 & -11 & 8 \\ 3 & 7 & 22 & 4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -2 & 8 & 2 \\ -6 & 3 & 3 & -2 \\ 7 & 6 & 5 & -2 \\ -1 & -3 & -10 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

641. Orbit 641 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -33 & 54 & -7 & -28 \\ -29 & 40 & 0 & 53 \\ -30 & -4 & 11 & 35 \\ 26 & 4 & 18 & 134 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 15 & -24 & 3 & 12 \\ 13 & -18 & 0 & -23 \\ 14 & 2 & -5 & -15 \\ -12 & -2 & -8 & -60 \end{pmatrix}$$

and $rank(A) = 4$.

642. Orbit 642 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -4 & -4 & -2 \\ -2 & 0 & -3 & 1 \\ 3 & -4 & 4 & 3 \\ -3 & 2 & -3 & 4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & 8 & 8 & 2 \\ 4 & 0 & 7 & 1 \\ -5 & 8 & -10 & -3 \\ 7 & -6 & 5 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

643. Orbit 643 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & -4 & -7 & -6 \\ -14 & -18 & 11 & -1 \\ 10 & -18 & -40 & -12 \\ 21 & 18 & 0 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & 2 & 3 & 2 \\ 6 & 8 & -5 & 1 \\ -4 & 8 & 18 & 6 \\ -9 & -8 & 0 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

644. Orbit 644 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8} \begin{pmatrix} -26 & -8 & -7 & -1 \\ -10 & 4 & 18 & -20 \\ 2 & 11 & -22 & 5 \\ -20 & 7 & 11 & 8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 12 & 4 & 3 & -1 \\ 4 & -2 & -8 & 10 \\ 0 & -5 & 10 & -1 \\ 10 & -3 & -5 & -4 \end{pmatrix}
$$

and $rank(A) = 4$.

645. Orbit 645 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} 40 & 0 & -7 & -17 \\ -11 & -18 & 15 & 6 \\ -44 & 11 & 51 & -12 \\ 7 & 29 & 1 & 65 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & 0 & 3 & 7 \\ 5 & 8 & -7 & -2 \\ 20 & -5 & -23 & 6 \\ -3 & -13 & -1 & -29 \end{pmatrix}
$$

and $rank(A) = 4$.

646. Orbit 646 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8} \begin{pmatrix} 4 & -4 & 2 & -2 \\ -7 & 0 & -3 & 2 \\ 17 & 1 & 0 & 16 \\ -8 & -3 & -5 & 18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & 2 & 0 & 0 \\ 3 & 0 & 1 & 0 \\ -7 & -1 & 0 & -6 \\ 4 & 1 & 1 & -8 \end{pmatrix}
$$

and $rank(A) = 4$.

647. Orbit 647 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} 14 & 21 & 26 & 19 \\ -11 & -4 & 15 & -8 \\ 21 & 36 & -25 & -12 \\ -4 & -11 & 22 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -6 & -9 & -12 & -9 \\ 5 & 2 & -7 & 4 \\ -9 & -16 & 11 & 6 \\ 2 & 5 & -10 & -13 \end{pmatrix}
$$

and $rank(A) = 4$.

648. Orbit 648 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 6 & -5 & -3 & -2 \\ -3 & 4 & 7 & 0 \\ -3 & -1 & 1 & 1 \\ 4 & 2 & 1 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -12 & 13 & 5 & 2 \\ 7 & -8 & -17 & 2 \\ 9 & 3 & -3 & 1 \\ -8 & -4 & -3 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

649. Orbit 649 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 22 & -15 & 10 & 13 \\ 2 & -12 & -11 & -9 \\ -16 & -14 & -14 & -2 \\ -14 & 11 & 15 & 18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -10 & 7 & -4 & -7 \\ -2 & 6 & 5 & 5 \\ 8 & 6 & 6 & 2 \\ 6 & -5 & -7 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

650. Orbit 650 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 8 & 4 & 23 \\ 7 & 4 & 0 & -19 \\ 14 & 33 & -7 & -12 \\ 18 & 7 & 33 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -4 & -2 & -11 \\ -3 & -2 & 0 & 9 \\ -6 & -15 & 3 & 6 \\ -8 & -3 & -15 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

651. Orbit 651 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 22 & 11 & -10 \\ -11 & -11 & -11 & -19 \\ -12 & 15 & -25 & 6 \\ 14 & -4 & -11 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -10 & -5 & 4 \\ 5 & 5 & 5 & 9 \\ 6 & -7 & 11 & -2 \\ -6 & 2 & 5 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

652. Orbit 652 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -36 & 7 & -4 & -75 \\ 19 & 50 & -40 & -1 \\ 21 & 11 & 40 & -30 \\ 40 & -18 & -54 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & -3 & 2 & 33 \\ -9 & -22 & 18 & 1 \\ -9 & -5 & -18 & 14 \\ -18 & 8 & 24 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

653. Orbit 653 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 18 & -15 & -14 \\ -11 & 18 & 7 & -8 \\ -19 & 4 & 7 & 6 \\ 3 & 4 & 1 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -8 & 7 & 6 \\ 5 & -8 & -3 & 4 \\ 9 & -2 & -3 & -2 \\ -1 & -2 & -1 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

654. Orbit 654 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & -15 & -14 & -10 \\ 11 & -22 & 4 & -1 \\ 3 & -11 & 11 & 17 \\ 3 & 18 & -7 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -1 & 7 & 6 & 4 \\ -5 & 10 & -2 & 1 \\ -1 & 5 & -5 & -7 \\ -1 & -8 & 3 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

655. Orbit 655 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -11 & -4 & -1 & -12 \\ -9 & 10 & -7 & -2 \\ 17 & 4 & 15 & -2 \\ -3 & -18 & -21 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 5 & 2 & 1 & 4 \\ 3 & -4 & 3 & 2 \\ -7 & -2 & -7 & 2 \\ 1 & 8 & 9 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

656. Orbit 656 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 22 & -25 & 15 & 12 \\ -22 & -36 & -14 & 28 \\ -8 & -18 & 11 & 13 \\ 0 & -7 & 26 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -10 & 11 & -7 & -6 \\ 10 & 16 & 6 & -12 \\ 4 & 8 & -5 & -5 \\ 0 & 3 & -12 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

657. Orbit 657 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & -7 & 15 & 1 \\ -11 & -43 & 8 & 24 \\ -4 & -7 & 11 & 6 \\ 0 & -7 & 26 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & 3 & -7 & -1 \\ 5 & 19 & -4 & -10 \\ 2 & 3 & -5 & -2 \\ 0 & 3 & -12 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

658. Orbit 658 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 7 & 1 & 6 \\ -4 & 9 & 3 & 2 \\ -3 & -4 & -4 & 3 \\ 3 & 2 & 2 & 1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -17 & -1 & -16 \\ 10 & -21 & -5 & -2 \\ 9 & 8 & 10 & -3 \\ -7 & -4 & -6 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

659. Orbit 659 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 1 & 4 & 1 & 4 \\ -1 & -2 & 1 & 2 \\ -3 & -2 & -3 & 0 \\ 5 & 2 & 5 & -10 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & -10 & -1 & -12 \\ 3 & 4 & -1 & -2 \\ 9 & 4 & 7 & 4 \\ -11 & -4 & -13 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

660. Orbit 660 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 0 & -3 & 1 \\ 0 & 6 & -3 & -1 \\ 4 & 2 & 1 & -1 \\ 4 & 2 & 1 & -7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 6 & 2 & 5 & -5 \\ 0 & -12 & 5 & 5 \\ -8 & -4 & -3 & 5 \\ -8 & -4 & -3 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

661. Orbit 661 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 3 & 13 & -6 & -2 \\ -11 & -1 & -6 & 2 \\ -5 & 7 & -14 & -6 \\ 3 & 7 & -14 & -18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -1 & -5 & 2 & 0 \\ 5 & 1 & 2 & 0 \\ 3 & -3 & 6 & 4 \\ -1 & -3 & 6 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

662. Orbit 662 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 18 & 3 & 1 \\ 4 & 18 & -18 & -12 \\ -11 & -18 & 7 & -8 \\ 7 & 4 & -6 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -8 & -1 & -1 \\ -2 & -8 & 8 & 6 \\ 5 & 8 & -3 & 4 \\ -3 & -2 & 2 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

663. Orbit 663 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -40 & 25 & -58 & 1 \\ 29 & 7 & 7 & -1 \\ -69 & 0 & 18 & -1 \\ -8 & -12 & -33 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 18 & -11 & 26 & -1 \\ -13 & -3 & -3 & 1 \\ 31 & 0 & -8 & 1 \\ 4 & 6 & 15 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

664. Orbit 664 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -61 & -36 & -76 & 1 \\ -69 & -40 & 29 & 6 \\ -11 & 11 & 47 & 17 \\ -19 & -1 & 58 & 40 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 27 & 16 & 34 & -1 \\ 31 & 18 & -13 & -2 \\ 5 & -5 & -21 & -7 \\ 9 & 1 & -26 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

665. Orbit 665 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -83 & 29 & 0 & -10 \\ -29 & 36 & 11 & -48 \\ 22 & 33 & 7 & -12 \\ 10 & -12 & 4 & 26 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 37 & -13 & 0 & 4 \\ 13 & -16 & -5 & 22 \\ -10 & -15 & -3 & 6 \\ -4 & 6 & -2 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

666. Orbit 666 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -14 & 29 & -18 & -17 \\ 0 & 0 & 0 & -30 \\ 0 & -25 & 7 & 24 \\ -8 & 10 & 11 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 6 & -13 & 8 & 7 \\ 0 & 0 & 0 & 14 \\ 0 & 11 & -3 & -10 \\ 4 & -4 & -5 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

667. Orbit 667 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & -15 & 7 & 9 \\ 0 & -21 & 12 & 23 \\ 17 & 1 & -14 & 2 \\ 2 & 1 & -9 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & 7 & -3 & -5 \\ 0 & 9 & -6 & -9 \\ -7 & -1 & 6 & 0 \\ 0 & -1 & 3 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

668. Orbit 668 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 15 & -17 & 18 & -12 \\ 17 & -13 & 1 & 5 \\ 19 & 28 & 17 & 14 \\ -13 & 12 & -14 & 11 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -7 & 7 & -8 & 4 \\ -9 & 5 & -1 & -1 \\ -7 & -12 & -7 & -4 \\ 5 & -6 & 6 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

669. Orbit 669 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -8 & 0 & 7 & 1 \\ 7 & 5 & -4 & 2 \\ 1 & -1 & 4 & -8 \\ 8 & 4 & -3 & 13 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 18 & 0 & -15 & -3 \\ -15 & -11 & 10 & -2 \\ 1 & 1 & -8 & 22 \\ -16 & -10 & 5 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

670. Orbit 670 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 10 & 11 & 6 & -5 \\ 5 & -11 & -3 & 15 \\ 14 & 11 & -1 & 10 \\ 7 & 11 & -2 & 22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -4 & -5 & -2 & 1 \\ -3 & 5 & 1 & -5 \\ -6 & -5 & 1 & -4 \\ -3 & -5 & 0 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

671. Orbit 671 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 25 & -52 & -19 & -6 \\ -7 & -17 & -24 & 48 \\ -9 & 9 & 25 & 25 \\ -9 & 78 & 2 & 103 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -9 & 24 & 13 & -4 \\ -1 & 7 & 6 & -12 \\ 5 & -5 & -9 & -9 \\ 5 & -36 & -6 & -45 \end{pmatrix}$$

and $rank(A) = 4$.

672. Orbit 672 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & -4 & -4 & 12 \\ 8 & -15 & -18 & -19 \\ -15 & -25 & 4 & 6 \\ 11 & 0 & 4 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -2 & 2 & 2 & -6 \\ -4 & 7 & 8 & 9 \\ 7 & 11 & -2 & -2 \\ -5 & 0 & -2 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

673. Orbit 673 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & -1 & 4 & -9 \\ 0 & -7 & -10 & -1 \\ -10 & 1 & -4 & 3 \\ -2 & 5 & -4 & 7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -10 & 3 & -8 & 17 \\ -2 & 17 & 22 & 5 \\ 24 & -3 & 8 & -3 \\ 4 & -11 & 8 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

674. Orbit 674 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 22 & 4 & -11 & 1 \\ -3 & -3 & -11 & -19 \\ 7 & -14 & 25 & -12 \\ -4 & 21 & 11 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -10 & -2 & 5 & -1 \\ 1 & 1 & 5 & 9 \\ -3 & 6 & -11 & 6 \\ 2 & -9 & -5 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

675. Orbit 675 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 8 & -29 & 27 \\ 27 & -46 & -21 & -16 \\ 20 & 3 & 21 & -28 \\ 1 & 37 & 51 & 29 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & -4 & 13 & -13 \\ -13 & 20 & 9 & 8 \\ -8 & -1 & -9 & 14 \\ -1 & -17 & -23 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

676. Orbit 676 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -11 & 22 & 4 & 23 \\ -21 & 0 & -11 & -12 \\ 0 & 0 & 0 & -8 \\ 10 & -8 & 7 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 5 & -10 & -2 & -11 \\ 9 & 0 & 5 & 6 \\ 0 & 0 & 0 & 4 \\ -4 & 4 & -3 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

677. Orbit 677 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -6 & 1 & -7 & -4 \\ -3 & -1 & -1 & 1 \\ -3 & 5 & -8 & 2 \\ 0 & 7 & -6 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 14 & -3 & 15 & 6 \\ 5 & 3 & 3 & 1 \\ 7 & -11 & 18 & -2 \\ 2 & -13 & 14 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

678. Orbit 678 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -26 & 10 & -10 & 12 \\ 11 & -22 & -18 & -15 \\ -8 & 7 & 4 & 3 \\ -15 & -11 & 4 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 12 & -4 & 4 & -6 \\ -5 & 10 & 8 & 7 \\ 4 & -3 & -2 & -1 \\ 7 & 5 & -2 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

679. Orbit 679 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 18 & 7 & 47 & 8 \\ 7 & -33 & -62 & 6 \\ 25 & 18 & 7 & 6 \\ 50 & 28 & 14 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -8 & -3 & -21 & -4 \\ -3 & 15 & 28 & -2 \\ -11 & -8 & -3 & -2 \\ -22 & -12 & -6 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

680. Orbit 680 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -4 & 18 & -10 \\ 18 & -22 & -51 & 17 \\ 54 & 29 & -11 & 6 \\ 32 & 17 & 14 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 2 & -8 & 4 \\ -8 & 10 & 23 & -7 \\ -24 & -13 & 5 & -2 \\ -14 & -7 & -6 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

681. Orbit 681 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -6 & 4 & -16 & -2 \\ 11 & 2 & 7 & 2 \\ -9 & 5 & 2 & 2 \\ -6 & -7 & -7 & 2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 14 & -8 & 36 & 2 \\ -25 & -4 & -15 & -2 \\ 21 & -11 & -4 & -2 \\ 16 & 19 & 17 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

682. Orbit 682 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 25 & 18 & 8 \\ -18 & 7 & 25 & -8 \\ 14 & 0 & -22 & 28 \\ -19 & -12 & -15 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -11 & -8 & -4 \\ 8 & -3 & -11 & 4 \\ -6 & 0 & 10 & -12 \\ 9 & 6 & 7 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

683. Orbit 683 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & -6 & -5 & -1 \\ -1 & -2 & 2 & 5 \\ -1 & 1 & -1 & 3 \\ -6 & 9 & 0 & 9 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -4 & 14 & 13 & -1 \\ 1 & 4 & -6 & -7 \\ 3 & -3 & 3 & -5 \\ 14 & -21 & -2 & -19 \end{pmatrix}$$

and $rank(A) = 4$.

684. Orbit 684 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -4 & 4 & -18 & -16 \\ -2 & -11 & 0 & 5 \\ -4 & 0 & -7 & 9 \\ -20 & 13 & -11 & 14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 2 & -2 & 8 & 6 \\ 0 & 5 & 0 & -1 \\ 2 & 0 & 3 & -3 \\ 10 & -5 & 5 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

685. Orbit 685 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & -7 & -7 & 1 \\ 15 & 7 & 7 & -1 \\ 7 & -7 & 29 & -1 \\ -15 & -1 & 7 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & 3 & 3 & -1 \\ -7 & -3 & -3 & 1 \\ -3 & 3 & -13 & 1 \\ 7 & 1 & -3 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

686. Orbit 686 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 10 & -21 & 30 \\ 4 & -15 & -25 & -8 \\ -15 & -11 & 4 & 14 \\ 14 & 0 & 22 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -1 & -4 & 9 & -14 \\ -2 & 7 & 11 & 4 \\ 7 & 5 & -2 & -6 \\ -6 & 0 & -10 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

687. Orbit 687 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 15 & -15 & 7 & 37 \\ -10 & -4 & 4 & -4 \\ -8 & -14 & 22 & -8 \\ -3 & -11 & 19 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -7 & 7 & -3 & -17 \\ 4 & 2 & -2 & 2 \\ 4 & 6 & -10 & 4 \\ 1 & 5 & -9 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

688. Orbit 688 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -25 & -25 & -3 & 5 \\ 36 & -36 & 22 & -30 \\ 32 & -18 & -54 & -12 \\ 7 & -7 & -21 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 11 & 11 & 1 & -3 \\ -16 & 16 & -10 & 14 \\ -14 & 8 & 24 & 6 \\ -3 & 3 & 9 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

689. Orbit 689 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -15 & -14 & 3 & -2 \\ 18 & -4 & 4 & -6 \\ -2 & -3 & -7 & 8 \\ 17 & -7 & 8 & 10 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 7 & 6 & -1 & 0 \\ -8 & 2 & -2 & 4 \\ 2 & 1 & 3 & -2 \\ -7 & 3 & -4 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

690. Orbit 690 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 7 & 29 & 23 \\ 4 & 11 & 0 & -1 \\ -8 & -18 & -11 & -23 \\ -19 & 0 & -18 & -43 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -3 & -13 & -11 \\ -2 & -5 & 0 & 1 \\ 4 & 8 & 5 & 11 \\ 9 & 0 & 8 & 19 \end{pmatrix}$$

and $rank(A) = 4$.

691. Orbit 691 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 17 & -13 & 7 & 11 \\ 3 & -10 & 1 & 10 \\ -7 & -7 & 2 & 2 \\ 1 & 4 & 12 & -17 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -37 & 29 & -15 & -27 \\ -7 & 22 & -3 & -20 \\ 19 & 13 & -4 & -2 \\ -1 & -10 & -28 & 39 \end{pmatrix}$$

and $rank(A) = 4$.

692. Orbit 692 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 39 & -32 & 26 & 43 \\ 6 & -32 & 6 & 72 \\ 2 & -8 & 7 & 27 \\ 7 & 6 & 25 & -38 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -15 & 14 & -10 & -25 \\ -4 & 14 & -4 & -26 \\ 6 & -2 & -1 & -7 \\ -1 & -4 & -13 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

693. Orbit 693 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 18 & -29 & 30 \\ -18 & 11 & 22 & -1 \\ -1 & 0 & -11 & 2 \\ -14 & -7 & 4 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -8 & 13 & -14 \\ 8 & -5 & -10 & 1 \\ 1 & 0 & 5 & 0 \\ 6 & 3 & -2 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

694. Orbit 694 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 43 & -76 & 58 & 77 \\ -36 & -76 & -69 & -1 \\ 53 & 18 & 87 & 6 \\ 68 & 18 & 40 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -19 & 34 & -26 & -35 \\ 16 & 34 & 31 & 1 \\ -23 & -8 & -39 & -2 \\ -30 & -8 & -18 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

695. Orbit 695 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -87 & -40 & 0 & -17 \\ 4 & 11 & 0 & -37 \\ -30 & 0 & -22 & 6 \\ -77 & 29 & 0 & 40 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 39 & 18 & 0 & 7 \\ -2 & -5 & 0 & 17 \\ 14 & 0 & 10 & -2 \\ 35 & -13 & 0 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

696. Orbit 696 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 54 & 29 & -47 & 44 \\ -58 & 69 & -21 & -48 \\ 7 & 4 & 36 & -41 \\ -11 & -36 & -24 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -24 & -13 & 21 & -20 \\ 26 & -31 & 9 & 22 \\ -3 & -2 & -16 & 19 \\ 5 & 16 & 10 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

697. Orbit 697 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & 29 & -58 & 26 \\ -18 & 58 & -21 & -19 \\ 7 & -25 & -4 & -30 \\ 0 & -18 & 5 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & -13 & 26 & -12 \\ 8 & -26 & 9 & 9 \\ -3 & 11 & 2 & 14 \\ 0 & 8 & -3 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

698. Orbit 698 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & -29 & 3 & -6 \\ 7 & -4 & 0 & -5 \\ -33 & 0 & -4 & -1 \\ 22 & -11 & 15 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 2 & 13 & -1 & 2 \\ -3 & 2 & 0 & 3 \\ 15 & 0 & 2 & 1 \\ -10 & 5 & -7 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

699. Orbit 699 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -52 & 44 & -51 & -75 \\ -68 & -18 & -18 & 32 \\ -52 & 43 & -26 & 15 \\ -36 & 49 & -61 & 26 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 24 & -22 & 21 & 27 \\ 28 & 10 & 10 & -8 \\ 24 & -19 & 12 & -1 \\ 20 & -15 & 29 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

700. Orbit 700 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & -7 & -7 & 1 \\ 15 & 7 & 7 & -1 \\ 7 & 29 & -29 & -1 \\ 21 & -1 & 7 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & 3 & 3 & -1 \\ -7 & -3 & -3 & 1 \\ -3 & -13 & 13 & 1 \\ -9 & 1 & -3 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

701. Orbit 701 has incidence 17 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & 3 & -8 & 7 \\ -8 & 6 & -5 & -3 \\ -1 & -9 & -1 & -9 \\ -3 & -2 & 0 & -11 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -8 & -7 & 18 & -17 \\ 18 & -14 & 9 & 9 \\ 3 & 19 & 3 & 23 \\ 7 & 4 & -4 & 25 \end{pmatrix}$$

and $rank(A) = 4$.

702. Orbit 702 has incidence 16 stabilizer of size 576. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -8 & 18 & 15 \\ -3 & 14 & 18 & -15 \\ 3 & -22 & 4 & -15 \\ -25 & 0 & -10 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 4 & -8 & -7 \\ 1 & -6 & -8 & 7 \\ -1 & 10 & -2 & 7 \\ 11 & 0 & 4 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

703. Orbit 703 has incidence 16 stabilizer of size 24. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & -4 & 0 & -3 \\ -10 & 3 & 0 & -1 \\ -8 & 0 & 0 & -8 \\ -3 & 7 & -14 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & 2 & 0 & 1 \\ 4 & -1 & 0 & 1 \\ 4 & 0 & 0 & 4 \\ 1 & -3 & 6 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

704. Orbit 704 has incidence 16 stabilizer of size 12. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{16} \begin{pmatrix} -11 & -8 & -6 & -3 \\ -12 & 2 & -3 & 3 \\ 24 & 11 & 16 & 3 \\ -13 & -21 & -19 & -7 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} 5 & 4 & 4 & -1 \\ 4 & 0 & 1 & 1 \\ -10 & -5 & -8 & 1 \\ 5 & 9 & 7 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

705. Orbit 705 has incidence 16 stabilizer of size 6. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 6 & -5 & -3 & 6 \\ -5 & -1 & 4 & 8 \\ -5 & -4 & -7 & 2 \\ -2 & 2 & 4 & 4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -14 & 11 & 7 & -16 \\ 11 & 1 & -8 & -14 \\ 13 & 8 & 17 & 0 \\ 4 & -4 & -10 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

706. Orbit 706 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -36 & 76 & 47 & 1 \\ 7 & 119 & 62 & 78 \\ 32 & 72 & 15 & -49 \\ -11 & 65 & 22 & -156 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & -34 & -21 & -1 \\ -3 & -53 & -28 & -34 \\ -14 & -32 & -7 & 23 \\ 5 & -29 & -10 & 70 \end{pmatrix}$$

and $rank(A) = 4$.

707. Orbit 707 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & -21 & 0 & 1 \\ -1 & -17 & -19 & -11 \\ -2 & -17 & 15 & 6 \\ -3 & -11 & -12 & 30 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & 47 & 0 & -5 \\ 3 & 39 & 41 & 29 \\ 6 & 39 & -35 & -8 \\ 7 & 25 & 26 & -66 \end{pmatrix}$$

and $rank(A) = 4$.

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708. Orbit 708 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -96 & 83 & 0 & 11 \\ 26 & 141 & 82 & 73 \\ 1 & 90 & 31 & -54 \\ -19 & 96 & 25 & -178 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 42 & -37 & 0 & -11 \\ -10 & -61 & -40 & -23 \\ 3 & -38 & -17 & 36 \\ 9 & -42 & -13 & 82 \end{pmatrix}$$

and $rank(A) = 4$.

709. Orbit 709 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 4 & 11 & 0 & 3 \\ -8 & 1 & 2 & -1 \\ -9 & -6 & -5 & -2 \\ 11 & -4 & 1 & -6 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -2 & -5 & 0 & -3 \\ 4 & -1 & 0 & 3 \\ 5 & 2 & 3 & 4 \\ -5 & 2 & -1 & 2 \end{pmatrix}$$

and $rank(A) = 4$.

710. Orbit 710 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 8 & 3 & -1 & -8 \\ -12 & -2 & -8 & 4 \\ -2 & 4 & -3 & 11 \\ -14 & -7 & -10 & 33 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -4 & -1 & 1 & 2 \\ 4 & 2 & 4 & 0 \\ 2 & -2 & 1 & -3 \\ 6 & 3 & 4 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

711. Orbit 711 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{16} \begin{pmatrix} -14 & 16 & -2 & 4 \\ -1 & -2 & 12 & -1 \\ -6 & 5 & -30 & -5 \\ 11 & -1 & -12 & -10 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} 6 & -8 & 2 & -4 \\ 1 & 0 & -4 & 3 \\ 4 & -3 & 14 & 5 \\ -5 & 1 & 4 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

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712. Orbit 712 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 11 & -4 & -1 & 2 \\ 16 & -8 & -14 & -2 \\ -12 & -7 & -3 & -2 \\ 1 & 11 & 12 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -5 & 2 & 1 & -2 \\ -8 & 4 & 6 & 2 \\ 6 & 3 & 1 & 2 \\ -1 & -5 & -6 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

713. Orbit 713 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 18 & -18 & -18 & 2 \\ 28 & -27 & -51 & -2 \\ -19 & -8 & 9 & -2 \\ -7 & 17 & 10 & 0 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -10 & 10 & 10 & -6 \\ -18 & 15 & 21 & 6 \\ 13 & 2 & -5 & 6 \\ -1 & -7 & -8 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

714. Orbit 714 has incidence 16 stabilizer of size 4. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -9 & -4 & 7 & 8 \\ -7 & 6 & 9 & -8 \\ -3 & -12 & 3 & -8 \\ -13 & 2 & -11 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 19 & 10 & -15 & -20 \\ 13 & -12 & -21 & 20 \\ 9 & 26 & -7 & 20 \\ 27 & -4 & 23 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

715. Orbit 715 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -43 & 52 & 85 & 30 \\ 60 & 103 & 70 & 5 \\ -70 & 95 & -94 & 65 \\ 17 & -26 & 9 & -18 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 19 & -24 & -35 & -24 \\ -26 & -45 & -34 & 7 \\ 34 & -43 & 40 & -19 \\ -7 & 12 & -5 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

716. Orbit 716 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{76} \begin{pmatrix} -48 & -2 & -13 & -3 \\ 24 & 24 & 2 & -10 \\ -65 & -24 & -59 & 36 \\ 11 & -24 & 0 & -13 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} 20 & 4 & 7 & -13 \\ -10 & -10 & -4 & 20 \\ 35 & 10 & 23 & 4 \\ -3 & 10 & 0 & 7 \end{pmatrix}
$$

and $rank(A) = 4$.

717. Orbit 717 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -2 & 0 & -13 & -1 \\ 2 & -4 & 4 & -8 \\ -10 & -1 & -4 & 1 \\ 2 & -3 & 1 & 4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & 0 & 29 & -1 \\ -4 & 10 & -10 & 22 \\ 24 & 3 & 8 & 3 \\ -4 & 7 & -3 & -8 \end{pmatrix}
$$

and $rank(A) = 4$.

718. Orbit 718 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -36 & -29 & -18 & 41 \\ 7 & -51 & -43 & 13 \\ 32 & 7 & -25 & 56 \\ -11 & 65 & 22 & 54 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & 13 & 8 & -19 \\ -3 & 23 & 19 & -5 \\ -14 & -3 & 11 & -24 \\ 5 & -29 & -10 & -24 \end{pmatrix}
$$

and $rank(A) = 4$.

719. Orbit 719 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} 51 & -18 & 22 & 5 \\ -11 & 0 & -40 & -23 \\ -26 & -29 & -11 & -2 \\ 22 & 11 & -7 & 84 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -23 & 8 & -10 & -3 \\ 5 & 0 & 18 & 11 \\ 12 & 13 & 5 & 2 \\ -10 & -5 & 3 & -38 \end{pmatrix}
$$

and $rank(A) = 4$.

720. Orbit 720 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & 2 & 7 & -1 \\ -6 & 5 & -3 & -2 \\ -2 & 0 & 10 & -6 \\ 0 & -3 & -2 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -6 & -4 & -17 & -3 \\ 14 & -11 & 7 & 8 \\ 6 & 0 & -22 & 18 \\ 0 & 7 & 4 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

721. Orbit 721 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 61 & 17 & 26 & 38 \\ -60 & -9 & -69 & 14 \\ -36 & 0 & 52 & 30 \\ 17 & -26 & 9 & 0 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -29 & -7 & -12 & -26 \\ 26 & 5 & 31 & 2 \\ 20 & 0 & -24 & -2 \\ -7 & 12 & -5 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

722. Orbit 722 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & 7 & -7 & 3 \\ -7 & -4 & 0 & 1 \\ -23 & 0 & 11 & 0 \\ 7 & -11 & 4 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & -3 & 3 & -3 \\ 3 & 2 & 0 & 1 \\ 11 & 0 & -5 & 2 \\ -3 & 5 & -2 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

723. Orbit 723 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & -3 & 11 & -6 \\ -1 & 12 & -1 & 0 \\ -2 & -6 & 22 & -12 \\ -3 & -11 & -12 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & 7 & -25 & 10 \\ 3 & -26 & 1 & 4 \\ 6 & 14 & -50 & 32 \\ 7 & 25 & 26 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

724. Orbit 724 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 14 & 18 & 8 & 8 \\ -10 & 10 & 0 & 16 \\ -5 & 13 & 3 & 1 \\ 5 & 5 & 11 & -21 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -32 & -40 & -18 & -22 \\ 22 & -22 & 0 & -32 \\ 13 & -29 & -7 & 3 \\ -11 & -11 & -25 & 47 \end{pmatrix}$$

and $rank(A) = 4$.

725. Orbit 725 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} 46 & -14 & 0 & 10 \\ -30 & -7 & -110 & -79 \\ -21 & -23 & 14 & 24 \\ -23 & 62 & 0 & 39 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} -22 & 10 & 0 & -18 \\ 16 & 5 & 46 & 51 \\ 15 & 11 & -10 & 10 \\ 11 & -28 & 0 & -17 \end{pmatrix}$$

and $rank(A) = 4$.

726. Orbit 726 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 4 & 13 & 11 & 4 \\ 3 & 14 & -10 & 3 \\ -16 & -11 & 1 & -2 \\ 7 & -18 & 0 & -11 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -2 & -5 & -5 & -4 \\ -1 & -6 & 4 & 1 \\ 8 & 5 & -1 & 4 \\ -3 & 8 & 0 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

727. Orbit 727 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -96 & -70 & -96 & 68 \\ 26 & -108 & -71 & -23 \\ 1 & -6 & -26 & 99 \\ -19 & 96 & 25 & 128 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 42 & 32 & 42 & -38 \\ -10 & 50 & 29 & 19 \\ 3 & 4 & 10 & -33 \\ 9 & -42 & -13 & -56 \end{pmatrix}$$

and $rank(A) = 4$.

728. Orbit 728 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 22 & 0 & 0 & 2 \\ -15 & -50 & -17 & -14 \\ -12 & 8 & 1 & 7 \\ -11 & 22 & 26 & 115 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -10 & 0 & 0 & -2 \\ 7 & 22 & 7 & 8 \\ 6 & -4 & -1 & -1 \\ 5 & -10 & -12 & -51 \end{pmatrix}$$

and $rank(A) = 4$.

729. Orbit 729 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12}\begin{pmatrix} 22 & 18 & -11 & 3 \\ -15 & -28 & -31 & -30 \\ -20 & 23 & 5 & 16 \\ -11 & 33 & 19 & 147 \end{pmatrix} + \frac{\sqrt{5}}{12}\begin{pmatrix} -10 & -8 & 5 & -3 \\ 7 & 12 & 13 & 16 \\ 10 & -11 & -3 & -4 \\ 5 & -15 & -9 & -65 \end{pmatrix}$$

and $rank(A) = 4$.

730. Orbit 730 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & 29 & 0 & 34 \\ 18 & -47 & 0 & -23 \\ 21 & 40 & 0 & -49 \\ 0 & 0 & 22 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & -13 & 0 & -16 \\ -8 & 21 & 0 & 11 \\ -9 & -18 & 0 & 23 \\ 0 & 0 & -10 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

731. Orbit 731 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 47 & 29 & 0 & 12 \\ -40 & 69 & 0 & 13 \\ -73 & -32 & 0 & 9 \\ 0 & 0 & 22 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -21 & -13 & 0 & -6 \\ 18 & -31 & 0 & -5 \\ 33 & 14 & 0 & -3 \\ 0 & 0 & -10 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

732. Orbit 732 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 4 & 0 & -7 & 7 \\ 3 & 8 & -12 & 3 \\ -2 & -6 & 28 & 2 \\ -7 & 0 & 5 & -2 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -2 & 0 & 3 & -5 \\ -1 & -4 & 6 & 1 \\ 2 & 2 & -12 & 2 \\ 3 & 0 & -3 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

733. Orbit 733 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 6 & 0 & 0 & 4 \\ -5 & 4 & 7 & 0 \\ -5 & 1 & -4 & 4 \\ -2 & -3 & 1 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -14 & 0 & 0 & -12 \\ 11 & -10 & -15 & 4 \\ 13 & -3 & 10 & -4 \\ 4 & 7 & -3 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

734. Orbit 734 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 8 & -2 & 3 & -1 \\ -1 & -1 & -9 & -5 \\ -2 & -3 & 4 & -1 \\ -3 & 8 & 0 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -18 & 6 & -7 & -1 \\ 3 & 3 & 19 & 15 \\ 6 & 7 & -10 & 7 \\ 7 & -18 & 0 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

735. Orbit 735 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -5 & -5 & -10 & 2 \\ -6 & -6 & -4 & -10 \\ 6 & 5 & -4 & 7 \\ -3 & 8 & 0 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 11 & 13 & 22 & -8 \\ 14 & 14 & 8 & 26 \\ -12 & -11 & 8 & -11 \\ 7 & -18 & 0 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

736. Orbit 736 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & 3 & -5 & 5 \\ -6 & -3 & -12 & -5 \\ 6 & 0 & 9 & -1 \\ -3 & 8 & 0 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -25 & -5 & 11 & -15 \\ 14 & 7 & 26 & 15 \\ -12 & 0 & -21 & 7 \\ 7 & -18 & 0 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

737. Orbit 737 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 22 & -29 & -18 & 13 \\ -18 & -21 & 3 & 26 \\ -5 & -21 & -8 & 0 \\ -7 & 7 & 15 & 37 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -10 & 13 & 8 & -7 \\ 8 & 9 & -1 & -10 \\ 3 & 9 & 4 & 2 \\ 3 & -3 & -7 & -17 \end{pmatrix}$$

and $rank(A) = 4$.

738. Orbit 738 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12}\begin{pmatrix} 4 & 4 & -4 & 0 \\ -8 & -10 & -5 & 3 \\ -9 & -10 & -8 & -9 \\ 11 & -4 & 1 & 8 \end{pmatrix} + \frac{\sqrt{5}}{12}\begin{pmatrix} -2 & -2 & 2 & -2 \\ 4 & 4 & 3 & 1 \\ 5 & 4 & 4 & 7 \\ -5 & 2 & -1 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

739. Orbit 739 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 11 & 94 & -18 & 59 \\ -11 & 51 & -22 & -34 \\ 3 & 4 & -51 & -38 \\ 11 & -47 & 33 & -61 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & -42 & 8 & -27 \\ 5 & -23 & 10 & 16 \\ -1 & -2 & 23 & 18 \\ -5 & 21 & -15 & 27 \end{pmatrix}$$

and $rank(A) = 4$.

740. Orbit 740 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -4 & -4 & -2 \\ -14 & -7 & -18 & -5 \\ 7 & 11 & 18 & 6 \\ -11 & 0 & 4 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 2 & 2 & 0 \\ 6 & 3 & 8 & 3 \\ -3 & -5 & -8 & -2 \\ 5 & 0 & -2 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

741. Orbit 741 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -11 & 29 & 26 \\ 4 & -14 & -15 & 31 \\ 3 & 4 & -15 & 6 \\ 7 & 7 & 15 & -21 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 5 & -13 & -12 \\ -2 & 6 & 7 & -13 \\ -1 & -2 & 7 & -2 \\ -3 & -3 & -7 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

742. Orbit 742 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} 131 & 32 & 48 & 19 \\ -50 & -5 & -30 & -3 \\ -168 & -16 & -94 & -26 \\ -55 & 85 & 30 & 46 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} -61 & -12 & -18 & -19 \\ 14 & 9 & 16 & 13 \\ 82 & 6 & 40 & 24 \\ 23 & -39 & -16 & -22 \end{pmatrix}$$

and $rank(A) = 4$.

743. Orbit 743 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -22 & 19 & -15 & 70 \\ 4 & 51 & 11 & -124 \\ 83 & 22 & 18 & -1 \\ -87 & -32 & -22 & -119 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 10 & -9 & 7 & -32 \\ -2 & -23 & -5 & 56 \\ -37 & -10 & -8 & 1 \\ 39 & 14 & 10 & 53 \end{pmatrix}$$

and $rank(A) = 4$.

744. Orbit 744 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} 48 & 13 & -111 & -64 \\ -48 & 48 & -26 & 66 \\ 70 & -24 & -35 & 3 \\ -26 & 63 & -142 & 113 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} -20 & -7 & 51 & 14 \\ 20 & -20 & 14 & -18 \\ -26 & 10 & 13 & 13 \\ 14 & -31 & 56 & -55 \end{pmatrix}$$

and $rank(A) = 4$.

745. Orbit 745 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & -4 & 10 & -4 \\ -1 & 9 & -3 & 1 \\ -2 & -6 & 22 & -10 \\ -3 & -9 & -11 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & 10 & -24 & 6 \\ 3 & -19 & 5 & 1 \\ 6 & 14 & -50 & 26 \\ 7 & 21 & 23 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

746. Orbit 746 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -96 & -44 & -84 & 30 \\ 26 & -44 & -33 & -49 \\ 1 & -6 & -26 & 47 \\ -19 & 58 & -1 & 64 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 42 & 22 & 34 & -20 \\ -10 & 22 & 11 & 29 \\ 3 & 4 & 10 & -13 \\ 9 & -24 & -3 & -28 \end{pmatrix}$$

and $rank(A) = 4$.

747. Orbit 747 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 4 & 12 & 2 & 14 \\ -8 & 12 & 9 & 11 \\ -9 & -10 & -8 & 7 \\ 11 & 10 & 9 & -14 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -2 & -6 & 0 & -8 \\ 4 & -6 & -3 & -3 \\ 5 & 4 & 4 & -1 \\ -5 & -4 & -5 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

748. Orbit 748 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 29 & -11 & 8 \\ 18 & -11 & -22 & -1 \\ 10 & 4 & -4 & 2 \\ -4 & 22 & 15 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -13 & 5 & -4 \\ -8 & 5 & 10 & 1 \\ -4 & -2 & 2 & 0 \\ 2 & -10 & -7 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

749. Orbit 749 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 18 & -18 & 12 \\ -7 & 4 & 0 & -5 \\ -11 & -32 & -15 & -16 \\ -22 & -4 & -25 & -21 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -8 & 8 & -6 \\ 3 & -2 & 0 & 3 \\ 5 & 14 & 7 & 8 \\ 10 & 2 & 11 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

750. Orbit 750 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{16} \begin{pmatrix} -12 & 0 & 16 & -6 \\ -31 & 5 & -3 & 7 \\ -30 & -6 & 14 & -4 \\ 21 & -5 & 35 & -13 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} 6 & -2 & -6 & 0 \\ 13 & -3 & 1 & -1 \\ 14 & 2 & -6 & 4 \\ -9 & 1 & -15 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

751. Orbit 751 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & 11 & -4 & -6 \\ 18 & -4 & -4 & 2 \\ -2 & 1 & -4 & 15 \\ 17 & 8 & 12 & 29 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & -5 & 2 & 2 \\ -8 & 2 & 2 & 0 \\ 2 & -1 & 2 & -5 \\ -7 & -4 & -6 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

752. Orbit 752 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 3 & 18 & 13 & 2 \\ 11 & 11 & -25 & -13 \\ -27 & 8 & -4 & -23 \\ 3 & -7 & 16 & -18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -1 & -8 & -5 & -2 \\ -5 & -5 & 11 & 7 \\ 13 & -4 & 2 & 11 \\ -1 & 3 & -8 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

753. Orbit 753 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -15 & 10 & 8 & 19 \\ 0 & 14 & -14 & -8 \\ 3 & 7 & 22 & 10 \\ -4 & -11 & 22 & -7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 7 & -4 & -4 & -9 \\ 0 & -6 & 6 & 4 \\ -1 & -3 & -10 & -4 \\ 2 & 5 & -10 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

754. Orbit 754 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 13 & 44 & -52 & 43 \\ -26 & 58 & 7 & -11 \\ -107 & 18 & -39 & -24 \\ 46 & 44 & -20 & -70 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -5 & -22 & 20 & -25 \\ 10 & -24 & -1 & 11 \\ 53 & -12 & 15 & 16 \\ -16 & -22 & 6 & 32 \end{pmatrix}$$

and $rank(A) = 4$.

755. Orbit 755 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 22 & 25 & -15 & -46 \\ 37 & -15 & -29 & 21 \\ -26 & 22 & -43 & 17 \\ 11 & 40 & 15 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -10 & -11 & 7 & 20 \\ -17 & 7 & 13 & -9 \\ 12 & -10 & 19 & -7 \\ -5 & -18 & -7 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

756. Orbit 756 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} 0 & 4 & 1 & 1 \\ -3 & -1 & -1 & 1 \\ -3 & 0 & -5 & 0 \\ 0 & -1 & -1 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -10 & -3 & -5 \\ 5 & 3 & 3 & 1 \\ 7 & 0 & 11 & 2 \\ 2 & 5 & 3 & 0 \end{pmatrix}
$$

and $rank(A) = 4$.

757. Orbit 757 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{44} \begin{pmatrix} 34 & -25 & -8 & -49 \\ 79 & 25 & 25 & 23 \\ -26 & 43 & 69 & -2 \\ -53 & -11 & 34 & -26 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -14 & 9 & 2 & 15 \\ -39 & -9 & -9 & -3 \\ 12 & -19 & -31 & 6 \\ 27 & 11 & -14 & 12 \end{pmatrix}
$$

and $rank(A) = 4$.

758. Orbit 758 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8} \begin{pmatrix} 19 & 3 & 3 & 5 \\ 27 & -8 & -18 & -1 \\ -35 & -10 & -7 & -2 \\ 5 & 29 & 30 & 4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -9 & -1 & -1 & -3 \\ -13 & 4 & 8 & 1 \\ 17 & 4 & 3 & 2 \\ -3 & -13 & -14 & -2 \end{pmatrix}
$$

and $rank(A) = 4$.

759. Orbit 759 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8} \begin{pmatrix} 26 & -4 & -4 & 12 \\ 24 & -19 & -7 & 2 \\ -31 & -14 & -11 & 2 \\ 5 & 29 & 30 & 4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -12 & 2 & 2 & -6 \\ -12 & 9 & 3 & 0 \\ 15 & 6 & 5 & 0 \\ -3 & -13 & -14 & -2 \end{pmatrix}
$$

and $rank(A) = 4$.

760. Orbit 760 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 44 & -31 & 26 & 11 \\ -27 & 1 & -39 & -11 \\ -31 & -26 & 6 & -11 \\ -52 & -6 & -7 & 77 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -22 & 17 & -10 & -11 \\ 7 & 3 & 15 & 11 \\ 17 & 10 & -4 & 11 \\ 20 & 4 & 1 & -33 \end{pmatrix}$$

and $rank(A) = 4$.

761. Orbit 761 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{6} \begin{pmatrix} 6 & -6 & 5 & 3 \\ -4 & 1 & -5 & -3 \\ -3 & -5 & 2 & -3 \\ -8 & -2 & -1 & 9 \end{pmatrix} + \frac{\sqrt{5}}{6} \begin{pmatrix} -3 & 3 & -2 & -2 \\ 1 & 0 & 2 & 2 \\ 2 & 2 & -1 & 2 \\ 3 & 1 & 0 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

762. Orbit 762 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -1 & 4 & -1 & 0 \\ -2 & 1 & -2 & 3 \\ -9 & 4 & 3 & 2 \\ 0 & 5 & 2 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 1 & -8 & 3 & -2 \\ 2 & -1 & 4 & -5 \\ 23 & -10 & -7 & -2 \\ -2 & -11 & -6 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

763. Orbit 763 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & -1 & -6 & 5 \\ -4 & -7 & 6 & 5 \\ -6 & 1 & 0 & 5 \\ 0 & 5 & 2 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -10 & 3 & 14 & -13 \\ 6 & 17 & -14 & -9 \\ 16 & -3 & 0 & -9 \\ -2 & -11 & -6 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

764. Orbit 764 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & -10 & -8 & -9 \\ 3 & -3 & 17 & 9 \\ 2 & 8 & -15 & 1 \\ 0 & 7 & -24 & -3 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 4 & 4 & 3 \\ -1 & 1 & -7 & -3 \\ 0 & -4 & 7 & 1 \\ 0 & -3 & 10 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

765. Orbit 765 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -25 & 26 & -28 \\ 40 & 7 & 25 & 28 \\ -8 & 8 & -14 & 28 \\ 3 & 4 & 15 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 11 & -12 & 12 \\ -18 & -3 & -11 & -12 \\ 4 & -4 & 6 & -12 \\ -1 & -2 & -7 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

766. Orbit 766 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -43 & -35 & -10 & -32 \\ -33 & 16 & -26 & -11 \\ 94 & 26 & 44 & 6 \\ -34 & -77 & -76 & -17 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 19 & 17 & 8 & 8 \\ 11 & -4 & 12 & 11 \\ -40 & -12 & -22 & 4 \\ 14 & 33 & 30 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

767. Orbit 767 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 51 & -11 & 18 & -14 \\ 88 & -15 & -76 & -19 \\ -77 & -36 & -40 & -37 \\ 26 & 76 & 62 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -23 & 5 & -8 & 6 \\ -40 & 7 & 34 & 9 \\ 35 & 16 & 18 & 17 \\ -12 & -34 & -28 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

768. Orbit 768 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & -4 & 2 & 0 \\ -2 & 0 & -5 & -1 \\ -5 & -2 & 0 & -3 \\ -3 & 2 & -1 & 6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -10 & 10 & -4 & -2 \\ 2 & 2 & 11 & 5 \\ 13 & 4 & 0 & 9 \\ 5 & -4 & 1 & -14 \end{pmatrix}$$

and $rank(A) = 4$.

769. Orbit 769 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 33 & -15 & 14 & -10 \\ -10 & 14 & -7 & 25 \\ 21 & 33 & 4 & -8 \\ -14 & -18 & 19 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -15 & 7 & -6 & 4 \\ 4 & -6 & 3 & -11 \\ -9 & -15 & -2 & 4 \\ 6 & 8 & -9 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

770. Orbit 770 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & -33 & 32 & -28 \\ 8 & 43 & 4 & 3 \\ 61 & 22 & 4 & -37 \\ -32 & -18 & -10 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 3 & 15 & -14 & 12 \\ -4 & -19 & -2 & -1 \\ -27 & -10 & -2 & 17 \\ 14 & 8 & 4 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

771. Orbit 771 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 15 & 17 & -13 & -7 \\ -2 & -14 & -4 & 10 \\ 5 & 11 & -1 & 15 \\ -2 & -4 & -14 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -33 & -39 & 27 & 13 \\ 4 & 32 & 10 & -20 \\ -9 & -27 & 1 & -31 \\ 6 & 8 & 30 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

772. Orbit 772 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & 22 & -3 & -10 \\ 4 & -4 & -4 & 10 \\ -8 & 19 & -7 & 10 \\ 3 & -7 & -14 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -10 & 1 & 4 \\ -2 & 2 & 2 & -4 \\ 4 & -9 & 3 & -4 \\ -1 & 3 & 6 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

773. Orbit 773 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -10 & -8 & 7 & 5 \\ -9 & 6 & 4 & -9 \\ -16 & -14 & 0 & -16 \\ -13 & 14 & -17 & 4 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 4 & 4 & -3 & -3 \\ 3 & -2 & -2 & 5 \\ 8 & 6 & 0 & 8 \\ 5 & -6 & 7 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

774. Orbit 774 has incidence 16 stabilizer of size 2. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & -2 & 7 & -4 \\ 5 & -5 & -11 & -3 \\ 1 & 2 & -2 & 3 \\ -1 & -7 & 2 & 4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -5 & 4 & -15 & 8 \\ -11 & 11 & 25 & 9 \\ 1 & -6 & 4 & -3 \\ 3 & 15 & -6 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

775. Orbit 775 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -32 & 36 & 15 & -15 \\ -43 & 62 & -22 & 9 \\ 17 & 33 & -19 & 7 \\ 0 & -15 & 4 & 63 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 14 & -16 & -7 & 5 \\ 19 & -28 & 10 & -3 \\ -7 & -15 & 9 & -1 \\ 0 & 7 & -2 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

776. Orbit 776 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -43 & -43 & 25 & -5 \\ 60 & -52 & -25 & -55 \\ 50 & 35 & 61 & -30 \\ 17 & -26 & 9 & -18 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 19 & 19 & -9 & -7 \\ -26 & 24 & 9 & 33 \\ -18 & -17 & -29 & 24 \\ -7 & 12 & -5 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

777. Orbit 777 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & 51 & 7 & 9 \\ -11 & 36 & 98 & 13 \\ -62 & 47 & -130 & 49 \\ 36 & -18 & 11 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & -23 & -3 & -5 \\ 5 & -16 & -44 & -5 \\ 28 & -21 & 58 & -21 \\ -16 & 8 & -5 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

778. Orbit 778 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -54 & 65 & 69 & 16 \\ -36 & 116 & -58 & 28 \\ 79 & 69 & -62 & -2 \\ -47 & -40 & 87 & 102 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 24 & -29 & -31 & -8 \\ 16 & -52 & 26 & -12 \\ -35 & -31 & 28 & 2 \\ 21 & 18 & -39 & -46 \end{pmatrix}$$

and $rank(A) = 4$.

779. Orbit 779 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -25 & -14 & 4 & -11 \\ -4 & 7 & 61 & -10 \\ 35 & -18 & -80 & -29 \\ 22 & -11 & -7 & -68 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 11 & 6 & -2 & 3 \\ 2 & -3 & -27 & 6 \\ -15 & 8 & 36 & 15 \\ -10 & 5 & 3 & 30 \end{pmatrix}$$

and $rank(A) = 4$.

780. Orbit 780 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} 1 & 0 & 2 & 1 \\ 2 & 7 & -5 & -4 \\ 5 & -8 & 2 & 3 \\ 4 & 1 & -1 & 2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -3 & 0 & -4 & -5 \\ -4 & -15 & 11 & 12 \\ -9 & 18 & -6 & -1 \\ -8 & -3 & 1 & -4 \end{pmatrix}
$$

and $rank(A) = 4$.

781. Orbit 781 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8} \begin{pmatrix} 0 & -3 & 1 & 6 \\ 2 & 1 & -2 & -7 \\ -1 & -3 & 1 & -3 \\ -3 & 1 & 2 & -16 \end{pmatrix} + \frac{\sqrt{5}}{40} \begin{pmatrix} -2 & 7 & -3 & -18 \\ -2 & -1 & 4 & 21 \\ 9 & 7 & -1 & 19 \\ 5 & -1 & -6 & 34 \end{pmatrix}
$$

and $rank(A) = 4$.

782. Orbit 782 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8} \begin{pmatrix} 0 & 3 & 7 & 14 \\ -3 & 11 & 3 & -13 \\ -7 & -3 & -4 & 4 \\ 10 & 3 & -14 & -27 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & -1 & -3 & -8 \\ 1 & -5 & -1 & 7 \\ 3 & 1 & 2 & 0 \\ -4 & -1 & 6 & 11 \end{pmatrix}
$$

and $rank(A) = 4$.

783. Orbit 783 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -36 & -47 & 65 & 48 \\ 25 & -40 & -29 & 6 \\ -1 & -29 & -7 & -31 \\ -4 & -36 & -7 & -69 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & 21 & -29 & -22 \\ -11 & 18 & 13 & -2 \\ 1 & 13 & 3 & 15 \\ 2 & 16 & 3 & 31 \end{pmatrix}
$$

and $rank(A) = 4$.

784. Orbit 784 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -33 & 18 & 38 \\ 62 & -83 & 36 & 13 \\ -36 & -83 & -29 & -34 \\ 25 & -11 & 11 & -133 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 15 & -8 & -18 \\ -28 & 37 & -16 & -5 \\ 16 & 37 & 13 & 16 \\ -11 & 5 & -5 & 59 \end{pmatrix}$$

and $rank(A) = 4$.

785. Orbit 785 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 6 & -1 & -3 & -4 \\ -6 & -3 & -2 & 1 \\ 2 & 0 & -4 & 8 \\ 4 & 8 & -5 & 7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -14 & 3 & 7 & 6 \\ 14 & 7 & 4 & 1 \\ -2 & 0 & 8 & -12 \\ -8 & -18 & 11 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

786. Orbit 786 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -14 & 25 & 7 & -16 \\ -15 & 21 & -7 & 5 \\ 2 & 14 & 1 & 7 \\ 3 & 4 & -21 & -8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 6 & -11 & -3 & 6 \\ 7 & -9 & 3 & -1 \\ 0 & -6 & -1 & -1 \\ -1 & -2 & 9 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

787. Orbit 787 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & -8 & -11 & -8 \\ -7 & 15 & 29 & -17 \\ -23 & -18 & -14 & 15 \\ -1 & 3 & 4 & 58 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & 4 & 5 & 2 \\ 3 & -7 & -13 & 9 \\ 11 & 8 & 6 & -5 \\ 1 & -1 & -2 & -26 \end{pmatrix}$$

and $rank(A) = 4$.

788. Orbit 788 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 47 & 123 & 48 \\ -4 & 47 & -58 & 71 \\ 17 & -11 & -11 & -49 \\ -51 & -11 & -18 & -116 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -21 & -55 & -22 \\ 2 & -21 & 26 & -31 \\ -7 & 5 & 5 & 23 \\ 23 & 5 & 8 & 52 \end{pmatrix}$$

and $rank(A) = 4$.

789. Orbit 789 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 10 & 10 & 0 \\ -8 & 24 & 8 & 14 \\ -3 & 1 & -15 & 9 \\ -9 & -3 & 3 & -29 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 0 & -22 & -22 & -4 \\ 18 & -54 & -18 & -28 \\ 9 & -3 & 33 & -15 \\ 21 & 7 & -7 & 65 \end{pmatrix}$$

and $rank(A) = 4$.

790. Orbit 790 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & 0 & 25 & 6 \\ 7 & -14 & -3 & 8 \\ 13 & 8 & -3 & 0 \\ 7 & 0 & -3 & -48 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 0 & -11 & -4 \\ -3 & 6 & 1 & -2 \\ -5 & -4 & 1 & 2 \\ -3 & 0 & 1 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

791. Orbit 791 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & 7 & 9 & -9 \\ -10 & 19 & 2 & 7 \\ -3 & 13 & -2 & 6 \\ -8 & -3 & 1 & 18 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & -15 & -21 & 17 \\ 22 & -43 & -4 & -13 \\ 9 & -29 & 6 & -8 \\ 18 & 7 & -3 & -42 \end{pmatrix}$$

and $rank(A) = 4$.

792. Orbit 792 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 5 & -4 & -7 \\ -11 & 16 & 2 & 9 \\ 8 & -2 & -1 & 1 \\ 9 & 3 & 3 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & -11 & 8 & 11 \\ 25 & -36 & -4 & -17 \\ -16 & 4 & 3 & 3 \\ -21 & -7 & -7 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

793. Orbit 793 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 9 & -138 & -51 & 30 \\ 172 & -155 & -9 & -46 \\ 33 & 9 & 34 & 4 \\ -8 & 26 & 26 & 96 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -5 & 62 & 21 & -24 \\ -76 & 69 & 5 & 28 \\ -11 & -5 & -14 & 10 \\ 2 & -12 & -12 & -46 \end{pmatrix}$$

and $rank(A) = 4$.

794. Orbit 794 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -26 & 32 & -19 & -15 \\ -57 & -7 & 19 & -17 \\ -37 & 12 & -7 & 10 \\ -6 & 13 & 57 & 128 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 10 & -14 & 9 & -1 \\ 27 & 1 & -9 & 15 \\ 21 & -8 & 1 & 8 \\ 4 & -5 & -27 & -56 \end{pmatrix}$$

and $rank(A) = 4$.

795. Orbit 795 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -72 & 0 & 36 & -6 \\ 47 & 80 & -18 & 13 \\ -15 & 22 & -25 & 38 \\ -4 & 36 & -7 & -69 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 32 & 0 & -16 & 2 \\ -21 & -36 & 8 & -5 \\ 7 & -10 & 11 & -16 \\ 2 & -16 & 3 & 31 \end{pmatrix}$$

and $rank(A) = 4$.

796. Orbit 796 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 17 & 28 & 15 & 2 \\ -6 & 42 & -6 & 0 \\ -4 & 13 & 31 & -16 \\ -3 & -11 & -2 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -39 & -62 & -35 & -10 \\ 14 & -94 & 14 & 4 \\ 10 & -29 & -69 & 40 \\ 7 & 25 & 4 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

797. Orbit 797 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -14 & 0 & 36 & -6 \\ 11 & 11 & -11 & -5 \\ -51 & -7 & 29 & 27 \\ 4 & -18 & 18 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 6 & 0 & -16 & 2 \\ -5 & -5 & 5 & 3 \\ 23 & 3 & -13 & -11 \\ -2 & 8 & -8 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

798. Orbit 798 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & 3 & -1 & 0 \\ -6 & 3 & 2 & 1 \\ -5 & 3 & -9 & -3 \\ 1 & -3 & 2 & 4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -10 & -7 & 3 & -4 \\ 14 & -7 & -4 & 1 \\ 13 & -7 & 21 & 11 \\ -3 & 7 & -6 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

799. Orbit 799 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -15 & -8 & -13 & 4 \\ 1 & 4 & 5 & -8 \\ -8 & -3 & -18 & 9 \\ 12 & -1 & 6 & 17 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 33 & 18 & 29 & -12 \\ -1 & -8 & -11 & 22 \\ 20 & 7 & 40 & -15 \\ -26 & 3 & -14 & -37 \end{pmatrix}$$

and $rank(A) = 4$.

800. Orbit 800 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -76 & 65 & -69 & 16 \\ -98 & 65 & 11 & -16 \\ 32 & 29 & 11 & 56 \\ 18 & -29 & -47 & 188 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 34 & -29 & 31 & -8 \\ 44 & -29 & -5 & 8 \\ -14 & -13 & -5 & -24 \\ -8 & 13 & 21 & -84 \end{pmatrix}$$

and $rank(A) = 4$.

801. Orbit 801 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 47 & 47 & -69 & 27 \\ -29 & -116 & 11 & 2 \\ 72 & 40 & 11 & -9 \\ -76 & 29 & -47 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -21 & -21 & 31 & -13 \\ 13 & 52 & -5 & 0 \\ -32 & -18 & -5 & 5 \\ 34 & -13 & 21 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

802. Orbit 802 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 16 & -1 & -3 & 2 \\ -8 & -3 & 1 & 0 \\ 3 & 0 & -12 & 1 \\ 7 & 8 & 0 & -11 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -36 & 3 & 7 & -8 \\ 18 & 7 & -3 & 4 \\ -5 & 0 & 26 & 3 \\ -15 & -18 & 0 & 25 \end{pmatrix}$$

and $rank(A) = 4$.

803. Orbit 803 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 69 & -4 & -29 & -6 \\ -40 & -29 & 11 & 6 \\ 21 & 11 & -54 & 34 \\ 36 & 58 & 0 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -31 & 2 & 13 & 2 \\ 18 & 13 & -5 & -2 \\ -9 & -5 & 24 & -14 \\ -16 & -26 & 0 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

804. Orbit 804 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 61 & -1 & 26 & 20 \\ -35 & -26 & -9 & -20 \\ 24 & 9 & 51 & 12 \\ -34 & -52 & 0 & -34 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -29 & 3 & -12 & -16 \\ 17 & 12 & 5 & 16 \\ -6 & -5 & -21 & 8 \\ 14 & 24 & 0 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

805. Orbit 805 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -123 & -174 & 47 & -2 \\ -11 & -181 & -36 & 2 \\ -4 & -40 & 134 & 38 \\ 0 & -47 & -123 & -76 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 55 & 78 & -21 & 0 \\ 5 & 81 & 16 & 0 \\ 2 & 18 & -60 & -16 \\ 0 & 21 & 55 & 34 \end{pmatrix}$$

and $rank(A) = 4$.

806. Orbit 806 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -4 & -4 & -4 & 8 \\ 18 & -25 & 0 & -11 \\ -6 & 8 & -7 & -9 \\ 10 & 7 & 11 & 0 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 2 & 2 & 2 & -6 \\ -8 & 11 & 0 & 7 \\ 4 & -4 & 3 & 7 \\ -4 & -3 & -5 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

807. Orbit 807 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 0 & 18 & 23 \\ 18 & -36 & -7 & -5 \\ 21 & 22 & 11 & -20 \\ 0 & 0 & 22 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 0 & -8 & -11 \\ -8 & 16 & 3 & 3 \\ -9 & -10 & -5 & 10 \\ 0 & 0 & -10 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

808. Orbit 808 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 29 & -11 & -6 \\ -11 & 11 & -25 & -5 \\ -8 & 4 & 69 & -9 \\ -29 & 0 & -25 & 90 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -13 & 5 & 2 \\ 5 & -5 & 11 & 3 \\ 4 & -2 & -31 & 5 \\ 13 & 0 & 11 & -40 \end{pmatrix}$$

and $rank(A) = 4$.

809. Orbit 809 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & -29 & -7 & 1 \\ 18 & -50 & 29 & -5 \\ -22 & -39 & 7 & -20 \\ -11 & 18 & -7 & -72 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & 13 & 3 & -1 \\ -8 & 22 & -13 & 3 \\ 10 & 17 & -3 & 10 \\ 5 & -8 & 3 & 32 \end{pmatrix}$$

and $rank(A) = 4$.

810. Orbit 810 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 76 & -32 & 57 & 23 \\ -38 & 0 & -38 & -36 \\ 14 & -51 & -32 & -41 \\ 38 & 19 & -13 & 82 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -36 & 14 & -27 & -19 \\ 18 & 0 & 18 & 24 \\ -2 & 23 & 14 & 31 \\ -18 & -9 & 5 & -40 \end{pmatrix}$$

and $rank(A) = 4$.

811. Orbit 811 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{124} \begin{pmatrix} -40 & 13 & 54 & 5 \\ 40 & -67 & 0 & 77 \\ 38 & 15 & -108 & -35 \\ -42 & 13 & 164 & -191 \end{pmatrix} + \frac{\sqrt{5}}{124} \begin{pmatrix} 14 & -3 & -22 & -25 \\ -14 & 25 & 0 & -13 \\ -4 & -13 & 44 & 51 \\ 24 & -3 & -76 & 87 \end{pmatrix}$$

and $rank(A) = 4$.

812. Orbit 812 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -54 & 18 & 18 & -24 \\ -40 & 51 & -47 & 6 \\ -26 & 33 & 22 & -31 \\ -40 & 36 & -7 & 141 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 24 & -8 & -8 & 10 \\ 18 & -23 & 21 & -2 \\ 12 & -15 & -10 & 15 \\ 18 & -16 & 3 & -63 \end{pmatrix}$$

and $rank(A) = 4$.

813. Orbit 813 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} 92 & -85 & -23 & 72 \\ 32 & -48 & -39 & 13 \\ -28 & 37 & -48 & 1 \\ 32 & -46 & 92 & -46 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} -44 & 39 & 11 & -46 \\ -12 & 18 & 17 & 7 \\ 20 & -21 & 18 & 21 \\ -12 & 22 & -44 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

814. Orbit 814 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & -4 & 7 & -12 \\ 32 & -11 & -14 & 5 \\ -23 & 8 & -3 & 14 \\ -22 & -1 & 4 & -69 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 2 & -3 & 4 \\ -14 & 5 & 6 & -1 \\ 11 & -4 & 1 & -4 \\ 10 & 1 & -2 & 31 \end{pmatrix}$$

and $rank(A) = 4$.

815. Orbit 815 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -47 & -29 & -36 & -24 \\ 58 & -18 & 47 & -23 \\ 32 & 22 & -79 & -27 \\ 7 & -47 & 4 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 21 & 13 & 16 & 10 \\ -26 & 8 & -21 & 11 \\ -14 & -10 & 35 & 13 \\ -3 & 21 & -2 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

816. Orbit 816 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -13 & 147 & 70 & -28 \\ -32 & 121 & -38 & 15 \\ -50 & 57 & 63 & -16 \\ -57 & -19 & -7 & 19 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 5 & -65 & -32 & 4 \\ 14 & -55 & 18 & 1 \\ 26 & -27 & -31 & 18 \\ 27 & 9 & 1 & -9 \end{pmatrix}$$

and $rank(A) = 4$.

817. Orbit 817 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -43 & 47 & -18 & 10 \\ -4 & 40 & 32 & -14 \\ -52 & -7 & -18 & 7 \\ 25 & 0 & 4 & -29 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 19 & -21 & 8 & -6 \\ 2 & -18 & -14 & 8 \\ 24 & 3 & 8 & -1 \\ -11 & 0 & -2 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

818. Orbit 818 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 40 & -11 & -36 & 23 \\ 72 & -29 & 98 & 53 \\ -73 & -36 & -61 & -20 \\ -11 & 18 & 51 & -210 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & 5 & 16 & -11 \\ -32 & 13 & -44 & -23 \\ 33 & 16 & 27 & 10 \\ 5 & -8 & -23 & 94 \end{pmatrix}$$

and $rank(A) = 4$.

819. Orbit 819 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -3 & 25 & -11 & -7 \\ 3 & -11 & -3 & 7 \\ 9 & 19 & 5 & 19 \\ -11 & 3 & -3 & -33 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & -11 & 5 & 1 \\ -1 & 5 & 1 & -1 \\ -3 & -9 & -3 & -5 \\ 5 & -1 & 1 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

820. Orbit 820 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -7 & 18 & 0 & -17 \\ -4 & -58 & -43 & -5 \\ 50 & 29 & 26 & 45 \\ -11 & -11 & -25 & 25 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & -8 & 0 & 7 \\ 2 & 26 & 19 & 3 \\ -22 & -13 & -12 & -19 \\ 5 & 5 & 11 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

821. Orbit 821 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 1 & 15 & -5 & 3 \\ -6 & -5 & -5 & 0 \\ 13 & 10 & 11 & 0 \\ -2 & 0 & -9 & 11 \end{pmatrix} + \frac{\sqrt{5}}{40}\begin{pmatrix} -3 & -33 & 11 & -13 \\ 16 & 13 & 11 & 8 \\ -25 & -22 & -25 & 10 \\ 6 & 2 & 19 & -23 \end{pmatrix}$$

and $rank(A) = 4$.

822. Orbit 822 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44}\begin{pmatrix} -43 & 17 & 26 & 54 \\ 16 & 8 & -69 & -29 \\ 15 & 43 & 0 & -82 \\ -44 & -18 & 9 & -87 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} 19 & -7 & -12 & -30 \\ -4 & -2 & 31 & 21 \\ -1 & -19 & 0 & 48 \\ 22 & 10 & -5 & 41 \end{pmatrix}$$

and $rank(A) = 4$.

823. Orbit 823 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{16}\begin{pmatrix} 11 & -4 & 7 & 4 \\ -2 & -1 & -18 & -9 \\ 0 & -11 & 0 & 7 \\ -13 & -6 & -3 & -2 \end{pmatrix} + \frac{\sqrt{5}}{16}\begin{pmatrix} -5 & 2 & -3 & -4 \\ 2 & 1 & 8 & 7 \\ 2 & 5 & 0 & 1 \\ 5 & 2 & 1 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

824. Orbit 824 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{44} \begin{pmatrix} -7 & -12 & -32 & 49 \\ -6 & 115 & 45 & 2 \\ -37 & 6 & -76 & -79 \\ 38 & 45 & -51 & -96 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 1 & 8 & 14 & -29 \\ 4 & -51 & -19 & 6 \\ 21 & -4 & 36 & 49 \\ -18 & -19 & 23 & 42 \end{pmatrix}
$$

and $rank(A) = 4$.

825. Orbit 825 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} 8 & 12 & -8 & -2 \\ 23 & -16 & -15 & 2 \\ 9 & -19 & -10 & -4 \\ 0 & 21 & -13 & -8 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -18 & -26 & 18 & 0 \\ -51 & 36 & 33 & 0 \\ -19 & 43 & 22 & 14 \\ 0 & -47 & 29 & 18 \end{pmatrix}
$$

and $rank(A) = 4$.

826. Orbit 826 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -5 & 10 & -8 & -3 \\ 0 & 19 & 2 & -5 \\ 0 & -2 & -18 & -4 \\ -9 & -11 & -2 & 16 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 11 & -22 & 18 & 3 \\ 0 & -43 & -4 & 15 \\ 2 & 4 & 40 & 14 \\ 21 & 25 & 4 & -36 \end{pmatrix}
$$

and $rank(A) = 4$.

827. Orbit 827 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -1 & -3 & 10 & -8 \\ 0 & 16 & 0 & 6 \\ 10 & 1 & 0 & 7 \\ -9 & -8 & 0 & -21 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 3 & 7 & -22 & 14 \\ 0 & -36 & 0 & -10 \\ -20 & -3 & 0 & -11 \\ 21 & 18 & 0 & 47 \end{pmatrix}
$$

and $rank(A) = 4$.

828. Orbit 828 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -10 & 8 & 5 & -3 \\ -3 & 3 & -7 & 3 \\ 0 & 1 & 16 & 1 \\ -5 & 0 & -12 & 7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 22 & -18 & -11 & 3 \\ 7 & -7 & 15 & -3 \\ 2 & -3 & -36 & 3 \\ 11 & 0 & 26 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

829. Orbit 829 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & -11 & 4 & 2 \\ -7 & -13 & -7 & -3 \\ 7 & -6 & 3 & 0 \\ 7 & -4 & -14 & -39 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 5 & -2 & -2 \\ 3 & 5 & 3 & 3 \\ -3 & 2 & -1 & 2 \\ -3 & 2 & 6 & 17 \end{pmatrix}$$

and $rank(A) = 4$.

830. Orbit 830 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 40 & 18 & 12 \\ -11 & 15 & -14 & 2 \\ -22 & 33 & 51 & 2 \\ -29 & 0 & -25 & 90 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -18 & -8 & -6 \\ 5 & -7 & 6 & 0 \\ 10 & -15 & -23 & 0 \\ 13 & 0 & 11 & -40 \end{pmatrix}$$

and $rank(A) = 4$.

831. Orbit 831 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 6 & -20 & 6 & 4 \\ 26 & -39 & -32 & 21 \\ 1 & 31 & 6 & -10 \\ -19 & -38 & 6 & 51 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -4 & 6 & -4 & -10 \\ -10 & 15 & 14 & -3 \\ 3 & -17 & -4 & 14 \\ 9 & 18 & -4 & -23 \end{pmatrix}$$

and $rank(A) = 4$.

832. Orbit 832 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} -18 & -36 & 51 & -17 \\ 36 & 4 & 11 & 13 \\ 43 & -3 & 4 & 20 \\ -11 & -7 & 22 & -40 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & 16 & -23 & 7 \\ -16 & -2 & -5 & -5 \\ -19 & 1 & -2 & -8 \\ 5 & 3 & -10 & 18 \end{pmatrix}
$$

and $rank(A) = 4$.

833. Orbit 833 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} -7 & 0 & 11 & 12 \\ 7 & 11 & 4 & 6 \\ 21 & -7 & -43 & 13 \\ 7 & -18 & 8 & -69 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 3 & 0 & -5 & -6 \\ -3 & -5 & -2 & -2 \\ -9 & 3 & 19 & -5 \\ -3 & 8 & -4 & 31 \end{pmatrix}
$$

and $rank(A) = 4$.

834. Orbit 834 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{44}\begin{pmatrix} 6 & 19 & 0 & -15 \\ -13 & 25 & 13 & -23 \\ -19 & 12 & 58 & -23 \\ -12 & 20 & -7 & -65 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} -4 & -9 & 0 & -1 \\ 5 & -13 & -5 & 19 \\ 9 & -8 & -24 & 19 \\ 8 & -6 & 1 & 25 \end{pmatrix}
$$

and $rank(A) = 4$.

835. Orbit 835 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 11 & -11 & -25 & 41 \\ 25 & -29 & 22 & -12 \\ 3 & -36 & -32 & -9 \\ -11 & 18 & 15 & -58 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -5 & 5 & 11 & -19 \\ -11 & 13 & -10 & 6 \\ -1 & 16 & 14 & 5 \\ 5 & -8 & -7 & 26 \end{pmatrix}
$$

and $rank(A) = 4$.

836. Orbit 836 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -17 & 0 & 26 & 63 \\ 42 & -27 & -69 & -38 \\ 7 & 60 & 0 & -73 \\ -18 & -1 & 9 & -44 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 7 & 0 & -12 & -35 \\ -16 & 15 & 31 & 26 \\ 1 & -26 & 0 & 43 \\ 10 & 3 & -5 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

837. Orbit 837 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -5 & -11 & 5 & 5 \\ 0 & -15 & -3 & -2 \\ 0 & 1 & 16 & 1 \\ 7 & 15 & -2 & 32 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 11 & 25 & -11 & -15 \\ 0 & 33 & 7 & 8 \\ 2 & -3 & -36 & 3 \\ -15 & -33 & 4 & -72 \end{pmatrix}$$

and $rank(A) = 4$.

838. Orbit 838 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -7 & -7 & 7 & -3 \\ 7 & -18 & -14 & 7 \\ 5 & 8 & 11 & -2 \\ -7 & -11 & -10 & 14 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 3 & 3 & -3 & -1 \\ -3 & 8 & 6 & -1 \\ -1 & -4 & -5 & 4 \\ 3 & 5 & 4 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

839. Orbit 839 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 8 & -3 & 10 \\ 0 & -5 & 3 & -2 \\ 0 & 6 & -3 & -7 \\ 3 & -3 & 9 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -25 & -18 & 7 & -26 \\ 0 & 11 & -7 & 8 \\ 2 & -14 & 7 & 21 \\ -7 & 7 & -21 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

840. Orbit 840 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -36 & 29 & 18 & 5 \\ 0 & 0 & -36 & 6 \\ -8 & 11 & 65 & -20 \\ -36 & 18 & -25 & 65 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & -13 & -8 & -3 \\ 0 & 0 & 16 & -2 \\ 4 & -5 & -29 & 10 \\ 16 & -8 & 11 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

841. Orbit 841 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 22 & -36 & 22 & -12 \\ -15 & -108 & 19 & 8 \\ -12 & -14 & 15 & -29 \\ -11 & 22 & 26 & 43 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -10 & 16 & -10 & 4 \\ 7 & 48 & -9 & -2 \\ 6 & 6 & -7 & 15 \\ 5 & -10 & -12 & -19 \end{pmatrix}$$

and $rank(A) = 4$.

842. Orbit 842 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 14 & 7 & 1 & 6 \\ 8 & 8 & 2 & -2 \\ -10 & 0 & 3 & -1 \\ 2 & -11 & 6 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -32 & -15 & -3 & -18 \\ -18 & -18 & -4 & 8 \\ 24 & 0 & -7 & 7 \\ -4 & 25 & -14 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

843. Orbit 843 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 0 & -18 & 1 \\ -11 & -7 & -14 & -34 \\ 3 & 4 & 15 & -16 \\ -11 & 11 & -3 & 25 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & 0 & 8 & -1 \\ 5 & 3 & 6 & 16 \\ -1 & -2 & -7 & 8 \\ 5 & -5 & 1 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

844. Orbit 844 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 4 & 11 & 0 & -11 \\ -3 & 12 & 7 & -12 \\ 0 & 9 & 10 & -1 \\ -1 & 6 & -3 & -16 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -2 & -5 & 0 & 3 \\ 1 & -6 & -3 & 8 \\ 0 & -5 & -4 & 3 \\ 1 & -2 & 1 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

845. Orbit 845 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 11 & 25 & -11 & -37 \\ -18 & 51 & -11 & 12 \\ 13 & -14 & -25 & 36 \\ -44 & -4 & -25 & -7 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -5 & -11 & 5 & 15 \\ 8 & -23 & 5 & -4 \\ -5 & 6 & 11 & -14 \\ 20 & 2 & 11 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

846. Orbit 846 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 11 & 11 & -11 & -1 \\ -11 & 11 & 11 & 1 \\ -5 & -3 & -11 & 7 \\ 11 & -11 & -3 & -11 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -5 & -5 & 5 & -1 \\ 5 & -5 & -5 & 1 \\ 3 & 1 & 5 & -1 \\ -5 & 5 & 1 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

847. Orbit 847 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -36 & -22 & 22 & 16 \\ -18 & -47 & 36 & 35 \\ 3 & -29 & -36 & 2 \\ 7 & 54 & 22 & -141 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & 10 & -10 & -8 \\ 8 & 21 & -16 & -15 \\ -1 & 13 & 16 & 0 \\ -3 & -24 & -10 & 63 \end{pmatrix}$$

and $rank(A) = 4$.

848. Orbit 848 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 58 & -29 & -18 & 19 \\ -11 & 4 & 15 & -16 \\ -15 & -14 & -61 & 2 \\ 18 & 11 & 44 & -51 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -26 & 13 & 8 & -9 \\ 5 & -2 & -7 & 8 \\ 7 & 6 & 27 & 0 \\ -8 & -5 & -20 & 23 \end{pmatrix}$$

and $rank(A) = 4$.

849. Orbit 849 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -64 & 32 & -19 & 11 \\ 13 & -7 & 20 & -10 \\ 20 & 12 & -63 & -29 \\ 19 & 13 & -52 & -20 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 28 & -14 & 9 & -11 \\ -5 & 1 & -6 & 14 \\ -6 & -8 & 31 & 23 \\ -9 & -5 & 20 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

850. Orbit 850 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -25 & 76 & -7 & -28 \\ -11 & 98 & -21 & -16 \\ -33 & 40 & 15 & 20 \\ -11 & -40 & 7 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 11 & -34 & 3 & 12 \\ 5 & -44 & 9 & 8 \\ 15 & -18 & -7 & -8 \\ 5 & 18 & -3 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

851. Orbit 851 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 13 & 4 & -2 \\ -11 & 23 & 6 & 2 \\ 9 & 3 & 0 & 2 \\ -5 & -3 & -10 & -8 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 25 & -29 & -8 & 0 \\ 25 & -51 & -14 & 0 \\ -19 & -7 & 0 & 0 \\ 11 & 7 & 22 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

852. Orbit 852 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -36 & 29 & 54 & 19 \\ -18 & -14 & -29 & -5 \\ 25 & 33 & 47 & -27 \\ 7 & 32 & -14 & -47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 16 & -13 & -24 & -9 \\ 8 & 6 & 13 & 3 \\ -11 & -15 & -21 & 13 \\ -3 & -14 & 6 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

853. Orbit 853 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 38 & -32 & 57 & 11 \\ 19 & 12 & -32 & -23 \\ -25 & -39 & 51 & 3 \\ 6 & 31 & 12 & -13 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -18 & 14 & -27 & -11 \\ -9 & -8 & 14 & 19 \\ 13 & 15 & -23 & 9 \\ -4 & -17 & -8 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

854. Orbit 854 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 0 & -1 & 6 \\ 1 & -11 & 0 & -8 \\ 2 & 4 & 8 & -8 \\ 4 & 3 & -1 & -18 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -7 & 0 & 3 & -16 \\ -3 & 23 & 0 & 22 \\ -4 & -10 & -18 & 22 \\ -8 & -5 & 1 & 40 \end{pmatrix}$$

and $rank(A) = 4$.

855. Orbit 855 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -17 & 0 & -8 & 11 \\ -8 & 53 & 0 & 5 \\ -9 & -25 & 43 & 5 \\ 18 & 10 & 1 & -43 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 7 & 0 & 2 & -11 \\ 2 & -27 & 0 & 7 \\ 5 & 9 & -19 & 7 \\ -10 & -8 & -3 & 19 \end{pmatrix}$$

and $rank(A) = 4$.

856. Orbit 856 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -32 & 7 & 25 & -12 \\ -11 & 55 & -11 & 23 \\ 6 & -10 & -25 & 25 \\ -15 & -8 & -3 & -18 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 14 & -3 & -11 & 4 \\ 5 & -25 & 5 & -9 \\ -2 & 4 & 11 & -9 \\ 7 & 4 & 1 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

857. Orbit 857 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44}\begin{pmatrix} 27 & -52 & 35 & 30 \\ 60 & -43 & 17 & -20 \\ -36 & 26 & -155 & 73 \\ 17 & -69 & -51 & 69 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} -15 & 24 & -17 & -24 \\ -26 & 19 & -7 & 16 \\ 20 & -12 & 69 & -21 \\ -7 & 31 & 21 & -31 \end{pmatrix}$$

and $rank(A) = 4$.

858. Orbit 858 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 47 & 7 & 0 & 34 \\ -7 & 22 & -11 & 24 \\ 50 & 11 & -7 & 2 \\ -4 & -40 & 40 & -112 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -21 & -3 & 0 & -16 \\ 3 & -10 & 5 & -10 \\ -22 & -5 & 3 & 0 \\ 2 & 18 & -18 & 50 \end{pmatrix}$$

and $rank(A) = 4$.

859. Orbit 859 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 22 & -18 & -11 & -13 \\ 36 & -47 & 29 & 46 \\ -8 & 22 & 14 & 20 \\ 22 & 29 & 4 & 69 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -10 & 8 & 5 & 5 \\ -16 & 21 & -13 & -20 \\ 4 & -10 & -6 & -8 \\ -10 & -13 & -2 & -31 \end{pmatrix}$$

and $rank(A) = 4$.

860. Orbit 860 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 26 & 8 & -26 & -22 \\ 0 & 95 & 44 & -21 \\ -27 & -17 & 26 & -4 \\ 17 & 0 & 26 & 43 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -12 & -2 & 12 & 0 \\ 0 & -43 & -22 & 19 \\ 15 & 7 & -12 & 12 \\ -7 & 0 & -12 & -19 \end{pmatrix}$$

and $rank(A) = 4$.

861. Orbit 861 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 16 & 3 & 3 & 2 \\ -6 & 2 & 1 & 3 \\ -2 & -3 & -12 & -1 \\ 10 & 0 & 0 & -16 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -36 & -5 & -7 & -8 \\ 14 & -4 & -3 & -3 \\ 6 & 7 & 26 & 7 \\ -22 & 0 & 0 & 36 \end{pmatrix}$$

and $rank(A) = 4$.

862. Orbit 862 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -94 & -11 & -29 & -24 \\ 0 & 40 & -11 & -23 \\ -8 & -7 & -18 & 9 \\ -22 & 36 & -36 & 210 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 42 & 5 & 13 & 10 \\ 0 & -18 & 5 & 11 \\ 4 & 3 & 8 & -3 \\ 10 & -16 & 16 & -94 \end{pmatrix}$$

and $rank(A) = 4$.

863. Orbit 863 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 19 & -18 & -13 & -2 \\ -19 & 26 & -20 & -23 \\ 7 & 13 & 12 & 22 \\ -19 & 19 & -19 & 19 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -9 & 12 & 5 & -6 \\ 9 & -10 & 6 & 19 \\ -1 & -5 & -8 & 0 \\ 9 & -9 & 9 & -9 \end{pmatrix}$$

and $rank(A) = 4$.

864. Orbit 864 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -18 & -4 & 18 & 0 \\ 0 & 8 & -8 & -4 \\ 5 & 1 & 7 & 9 \\ 3 & 3 & -3 & 19 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 8 & 2 & -8 & -2 \\ 0 & -4 & 4 & 4 \\ -1 & -1 & -3 & -1 \\ -1 & -1 & 1 & -9 \end{pmatrix}$$

and $rank(A) = 4$.

865. Orbit 865 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -15 & 14 & -11 & 0 \\ -16 & 5 & 8 & 3 \\ 34 & 15 & -4 & 7 \\ -3 & 4 & -7 & -22 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 7 & -6 & 5 & -2 \\ 6 & -3 & -4 & 1 \\ -14 & -7 & 2 & -1 \\ 1 & -2 & 3 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

866. Orbit 866 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 69 & -36 & 45 \\ -58 & -33 & -29 & 2 \\ 43 & 69 & 40 & -16 \\ 47 & 47 & -47 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -31 & 16 & -21 \\ 26 & 15 & 13 & 0 \\ -19 & -31 & -18 & 8 \\ -21 & -21 & 21 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

867. Orbit 867 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 5 & -5 & 9 \\ 0 & -4 & 4 & 0 \\ 0 & 4 & -4 & -4 \\ 3 & -3 & 9 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -25 & -11 & 11 & -23 \\ 0 & 8 & -8 & 4 \\ 2 & -10 & 10 & 14 \\ -7 & 7 & -21 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

868. Orbit 868 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 21 & -8 & -6 \\ 10 & 20 & 4 & -18 \\ -18 & 13 & 2 & -5 \\ 1 & 6 & -2 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -7 & -47 & 18 & 10 \\ -24 & -46 & -10 & 44 \\ 42 & -29 & -4 & 15 \\ -3 & -14 & 4 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

869. Orbit 869 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 29 & -11 & -28 \\ -11 & 18 & 7 & 6 \\ -8 & 22 & 14 & 20 \\ 7 & 11 & 4 & 58 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & -13 & 5 & 12 \\ 5 & -8 & -3 & -2 \\ 4 & -10 & -6 & -8 \\ -3 & -5 & -2 & -26 \end{pmatrix}$$

and $rank(A) = 4$.

870. Orbit 870 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} -74 & 122 & 26 & -14 \\ -26 & 109 & -37 & 38 \\ 70 & 37 & 98 & 49 \\ 0 & -24 & -61 & -85 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} 34 & -54 & -14 & -10 \\ 14 & -47 & 17 & 0 \\ -26 & -17 & -44 & -3 \\ 0 & 10 & 27 & 37 \end{pmatrix}$$

and $rank(A) = 4$.

871. Orbit 871 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} -37 & -26 & 13 & -38 \\ 13 & 74 & -2 & -23 \\ -28 & 0 & -159 & 1 \\ 74 & 0 & 0 & -122 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} 17 & 14 & -7 & 0 \\ -7 & -34 & 4 & 27 \\ 18 & 0 & 71 & 17 \\ -34 & 0 & 0 & 54 \end{pmatrix}$$

and $rank(A) = 4$.

872. Orbit 872 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -34 & 17 & 41 & 46 \\ -9 & 52 & 33 & 40 \\ -44 & 26 & -44 & 40 \\ -17 & -43 & 0 & -8 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 14 & -7 & -13 & -28 \\ 5 & -24 & -11 & -10 \\ 22 & -12 & 22 & -10 \\ 7 & 19 & 0 & 2 \end{pmatrix}$$

and $rank(A) = 4$.

873. Orbit 873 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 3 & 10 & -7 & -10 \\ -3 & -7 & 14 & 14 \\ -13 & 3 & -25 & -1 \\ -3 & 22 & 18 & -7 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -1 & -4 & 3 & 2 \\ 1 & 3 & -6 & -4 \\ 7 & -1 & 11 & 3 \\ 1 & -10 & -8 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

874. Orbit 874 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -25 & -40 & 15 & -4 \\ -14 & -14 & 14 & 4 \\ 10 & -7 & -47 & 4 \\ 7 & 47 & 18 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 11 & 18 & -7 & 0 \\ 6 & 6 & -6 & 0 \\ -4 & 3 & 21 & 0 \\ -3 & -21 & -8 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

875. Orbit 875 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 89 & 64 & -109 & -22 \\ -45 & 140 & 160 & -61 \\ -146 & 204 & -217 & -29 \\ 64 & 0 & -102 & 166 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -41 & -28 & 47 & 0 \\ 19 & -64 & -70 & 37 \\ 68 & -92 & 97 & 23 \\ -28 & 0 & 46 & -74 \end{pmatrix}$$

and $rank(A) = 4$.

876. Orbit 876 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -18 & -11 & -8 & 1 \\ 11 & 0 & 4 & -1 \\ 14 & 4 & -11 & -1 \\ 7 & -7 & 1 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 8 & 5 & 4 & -1 \\ -5 & 0 & -2 & 1 \\ -6 & -2 & 5 & 1 \\ -3 & 3 & -1 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

877. Orbit 877 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 3 & 8 & 4 & -1 \\ -6 & 0 & 10 & 6 \\ -7 & 3 & -12 & 8 \\ 8 & -5 & -2 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -7 & -18 & -8 & -1 \\ 14 & 0 & -22 & -10 \\ 17 & -7 & 28 & -14 \\ -18 & 11 & 2 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

878. Orbit 878 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -4 & 10 & 8 & 0 \\ -8 & 11 & -10 & 9 \\ 9 & 3 & -6 & -2 \\ -3 & -8 & 8 & 11 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 8 & -22 & -16 & -4 \\ 18 & -25 & 22 & -17 \\ -19 & -7 & 14 & 8 \\ 7 & 18 & -20 & -25 \end{pmatrix}$$

and $rank(A) = 4$.

879. Orbit 879 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -65 & 18 & 14 & 5 \\ 18 & -18 & -18 & -34 \\ 72 & 40 & -11 & -23 \\ -11 & -18 & -21 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 29 & -8 & -6 & -3 \\ -8 & 8 & 8 & 16 \\ -32 & -18 & 5 & 11 \\ 5 & 8 & 9 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

880. Orbit 880 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & 14 & -11 & -16 \\ 0 & 32 & 3 & 5 \\ 3 & 11 & -11 & 1 \\ -12 & -9 & 3 & -28 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & -6 & 5 & 6 \\ 0 & -14 & -1 & -1 \\ -1 & -5 & 5 & 1 \\ 6 & 5 & -1 & 12 \end{pmatrix}$$

and $rank(A) = 4$.

881. Orbit 881 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 3 & 2 & 1 \\ 2 & 4 & -1 & -3 \\ 0 & 2 & 4 & -2 \\ -4 & -3 & 1 & -10 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 10 & -5 & -6 & -5 \\ -4 & -8 & 1 & 9 \\ 2 & -4 & -10 & 8 \\ 10 & 7 & -3 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

882. Orbit 882 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & -36 & 47 & 12 \\ 0 & -22 & 0 & 6 \\ -19 & 0 & 4 & -9 \\ -4 & -36 & -7 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & 16 & -21 & -6 \\ 0 & 10 & 0 & -2 \\ 9 & 0 & -2 & 5 \\ 2 & 16 & 3 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

883. Orbit 883 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 36 & 11 & -29 & 12 \\ -29 & 29 & -7 & -23 \\ 10 & -14 & 29 & -27 \\ -11 & -18 & -7 & -22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -16 & -5 & 13 & -6 \\ 13 & -13 & 3 & 11 \\ -4 & 6 & -13 & 13 \\ 5 & 8 & 3 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

884. Orbit 884 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 58 & 29 & 18 & -17 \\ -22 & -11 & -29 & 24 \\ 28 & 18 & 11 & -31 \\ -22 & 58 & -36 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -26 & -13 & -8 & 7 \\ 10 & 5 & 13 & -10 \\ -12 & -8 & -5 & 15 \\ 10 & -26 & 16 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

885. Orbit 885 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -11 & 3 & 25 & -7 \\ 18 & 14 & -21 & -1 \\ -9 & -26 & 8 & -9 \\ -8 & -29 & -18 & 3 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 5 & -1 & -11 & 1 \\ -8 & -6 & 9 & 3 \\ 5 & 12 & -4 & 7 \\ 4 & 13 & 8 & -1 \end{pmatrix}$$

and $rank(A) = 4$.

886. Orbit 886 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & 1 & -6 & 4 \\ -2 & 7 & -1 & -4 \\ -8 & 2 & -4 & -4 \\ 3 & 4 & -1 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & -3 & 12 & -12 \\ 4 & -15 & 3 & 12 \\ 20 & -6 & 8 & 12 \\ -5 & -10 & 1 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

887. Orbit 887 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -13 & 13 & 25 & 11 \\ 13 & 19 & -20 & -24 \\ 27 & 32 & -14 & -29 \\ 1 & -38 & -7 & -44 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 5 & -5 & -13 & -11 \\ -5 & -9 & 6 & 16 \\ -7 & -14 & 2 & 23 \\ 3 & 18 & 1 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

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888. Orbit 888 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -51 & -14 & -47 & 34 \\ 11 & 25 & 11 & -5 \\ -26 & -7 & 11 & 6 \\ -22 & -54 & 11 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 23 & 6 & 21 & -16 \\ -5 & -11 & -5 & 3 \\ 12 & 3 & -5 & -2 \\ 10 & 24 & -5 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

889. Orbit 889 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -54 & 18 & -18 & -24 \\ 55 & 40 & 29 & 28 \\ -8 & 40 & 25 & 13 \\ 7 & -40 & 0 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 24 & -8 & 8 & 10 \\ -25 & -18 & -13 & -12 \\ 4 & -18 & -11 & -5 \\ -3 & 18 & 0 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

890. Orbit 890 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 94 & 7 & 18 & 5 \\ 0 & -11 & -7 & 2 \\ 14 & -40 & -83 & -9 \\ 36 & 0 & 0 & -58 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -42 & -3 & -8 & -3 \\ 0 & 5 & 3 & 0 \\ -6 & 18 & 37 & 5 \\ -16 & 0 & 0 & 26 \end{pmatrix}$$

and $rank(A) = 4$.

891. Orbit 891 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & 14 & 3 & 6 \\ -13 & -1 & 7 & 5 \\ -23 & 4 & -14 & 1 \\ -7 & 11 & 4 & 0 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & -6 & -1 & -4 \\ 5 & 1 & -3 & -1 \\ 11 & -2 & 6 & 1 \\ 3 & -5 & -2 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

892. Orbit 892 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -15 & 65 & -29 & 23 \\ -18 & 29 & -11 & 6 \\ -66 & -7 & -40 & -5 \\ -33 & -29 & 0 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 7 & -29 & 13 & -11 \\ 8 & -13 & 5 & -2 \\ 30 & 3 & 18 & 3 \\ 15 & 13 & 0 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

893. Orbit 893 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -29 & -47 & 30 \\ -11 & -47 & 11 & -5 \\ 28 & 18 & -47 & -9 \\ -43 & -36 & 11 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 13 & 21 & -14 \\ 5 & 21 & -5 & 3 \\ -12 & -8 & 21 & 5 \\ 19 & 16 & -5 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

894. Orbit 894 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -40 & 47 & 0 & 1 \\ -11 & 47 & -11 & -5 \\ -30 & -11 & -29 & 2 \\ -15 & -11 & -18 & 36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 18 & -21 & 0 & -1 \\ 5 & -21 & 5 & 3 \\ 14 & 5 & 13 & 0 \\ 7 & 5 & 8 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

895. Orbit 895 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -18 & 7 & 11 & 24 \\ 4 & -10 & -18 & 8 \\ -4 & -6 & -1 & -7 \\ -4 & 3 & -14 & -35 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 8 & -3 & -5 & -12 \\ -2 & 4 & 8 & -2 \\ 2 & 2 & 1 & 5 \\ 2 & -1 & 6 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

896. Orbit 896 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{124} \begin{pmatrix} 23 & -56 & -35 & -4 \\ 23 & -159 & -1 & 73 \\ 23 & 22 & -34 & 17 \\ -45 & 149 & -92 & -36 \end{pmatrix} + \frac{\sqrt{5}}{124} \begin{pmatrix} -9 & 30 & 11 & -20 \\ -9 & 73 & -5 & -7 \\ -9 & -14 & 16 & 23 \\ 23 & -61 & 36 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

897. Orbit 897 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 5 & 13 & -16 & -8 \\ -13 & 19 & 3 & 3 \\ -6 & -11 & -4 & -1 \\ 2 & -3 & 1 & 12 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -11 & -29 & 36 & 14 \\ 29 & -43 & -7 & -3 \\ 14 & 23 & 10 & 7 \\ -4 & 7 & -3 & -28 \end{pmatrix}$$

and $rank(A) = 4$.

898. Orbit 898 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & -26 & 4 & -8 \\ -6 & -17 & -8 & 7 \\ 1 & -9 & -2 & 6 \\ 5 & -6 & -12 & -7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 4 & 56 & -10 & 14 \\ 14 & 37 & 18 & -13 \\ -1 & 19 & 4 & -10 \\ -11 & 14 & 26 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

899. Orbit 899 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & -2 & -5 & -11 \\ 7 & -14 & 11 & 16 \\ -4 & 15 & -11 & -2 \\ 11 & 11 & -3 & 25 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & 0 & 3 & 3 \\ -3 & 6 & -5 & -6 \\ 2 & -7 & 5 & 2 \\ -5 & -5 & 1 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

900. Orbit 900 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -25 & 0 & 76 & -35 \\ 47 & 76 & 29 & 6 \\ 47 & 69 & -11 & 31 \\ 3 & 21 & -36 & 62 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 11 & 0 & -34 & 15 \\ -21 & -34 & -13 & -2 \\ -21 & -31 & 5 & -13 \\ -1 & -9 & 16 & -28 \end{pmatrix}$$

and $rank(A) = 4$.

901. Orbit 901 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 5 & -8 & -6 \\ -2 & 1 & 6 & 3 \\ -6 & -9 & 1 & 2 \\ -1 & -1 & 1 & 7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -7 & -11 & 18 & 10 \\ 4 & -3 & -14 & -3 \\ 14 & 19 & -1 & 0 \\ 3 & 3 & -3 & -17 \end{pmatrix}$$

and $rank(A) = 4$.

902. Orbit 902 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 47 & 0 & 18 & -13 \\ 0 & 11 & 29 & 24 \\ -40 & 15 & 25 & 20 \\ 7 & 18 & 22 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -21 & 0 & -8 & 5 \\ 0 & -5 & -13 & -10 \\ 18 & -7 & -11 & -8 \\ -3 & -8 & -10 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

903. Orbit 903 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 13 & 5 & 12 & 0 \\ -5 & 3 & 12 & -2 \\ 2 & 12 & 7 & 5 \\ -6 & -8 & 7 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -29 & -11 & -26 & -4 \\ 11 & -7 & -28 & 8 \\ -4 & -28 & -15 & -7 \\ 14 & 18 & -17 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

904. Orbit 904 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -25 & -76 & 87 & -20 \\ 29 & 47 & 112 & 64 \\ -80 & 22 & 0 & -16 \\ 32 & -7 & 69 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 11 & 34 & -39 & 8 \\ -13 & -21 & -50 & -28 \\ 36 & -10 & 0 & 8 \\ -14 & 3 & -31 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

905. Orbit 905 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 10 & 0 & -4 & 8 \\ -11 & 4 & 3 & -10 \\ -5 & 3 & -6 & -6 \\ 12 & 9 & 7 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -22 & 0 & 8 & -20 \\ 25 & -10 & -7 & 26 \\ 13 & -9 & 12 & 18 \\ -26 & -21 & -17 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

906. Orbit 906 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -3 & 5 & -28 & -2 \\ -1 & 14 & -7 & -10 \\ 6 & -1 & -5 & 4 \\ 14 & -10 & 2 & 6 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 7 & -11 & 62 & 2 \\ 3 & -32 & 15 & 26 \\ -12 & 1 & 11 & -4 \\ -30 & 22 & -6 & -14 \end{pmatrix}$$

and $rank(A) = 4$.

907. Orbit 907 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 11 & 0 & 4 & -5 \\ 4 & -10 & -18 & -14 \\ 7 & -3 & -18 & 4 \\ -14 & 1 & -10 & 33 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -5 & 0 & -2 & 1 \\ -2 & 4 & 8 & 8 \\ -3 & 1 & 8 & 0 \\ 6 & -1 & 4 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

908. Orbit 908 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -11 & 7 & 22 & 6 \\ 7 & -43 & 15 & -3 \\ 14 & 15 & -18 & -7 \\ 10 & -7 & -17 & -50 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 5 & -3 & -10 & -4 \\ -3 & 19 & -7 & 3 \\ -6 & -7 & 8 & 5 \\ -4 & 3 & 7 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

909. Orbit 909 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -25 & 72 & 40 & -35 \\ 4 & 14 & 29 & 53 \\ -51 & 58 & 47 & 60 \\ -36 & 14 & 22 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 11 & -32 & -18 & 15 \\ -2 & -6 & -13 & -23 \\ 23 & -26 & -21 & -26 \\ 16 & -6 & -10 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

910. Orbit 910 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & -44 & -65 & 5 \\ -11 & -69 & -25 & -63 \\ 72 & 7 & -54 & 31 \\ -29 & 76 & 0 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 20 & 29 & -3 \\ 5 & 31 & 11 & 29 \\ -32 & -3 & 24 & -13 \\ 13 & -34 & 0 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

911. Orbit 911 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{124} \begin{pmatrix} 41 & 41 & 39 & 47 \\ 95 & -123 & -41 & 9 \\ 13 & 41 & 13 & -19 \\ 41 & -13 & -11 & -121 \end{pmatrix} + \frac{\sqrt{5}}{124} \begin{pmatrix} -19 & -19 & -9 & -49 \\ -41 & 57 & 19 & 17 \\ -3 & -19 & -3 & 33 \\ -19 & 3 & -7 & 47 \end{pmatrix}$$

and $rank(A) = 4$.

912. Orbit 912 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 36 & 14 & 0 & 10 \\ -3 & 4 & -7 & -24 \\ 13 & -25 & 54 & -10 \\ 24 & -7 & 11 & -50 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -16 & -6 & 0 & -6 \\ 1 & -2 & 3 & 12 \\ -5 & 11 & -24 & 6 \\ -10 & 3 & -5 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

913. Orbit 913 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 7 & 44 & -89 & -2 \\ -64 & 70 & 19 & 15 \\ 46 & 18 & -44 & -4 \\ -25 & 6 & -38 & -83 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -1 & -22 & 41 & -6 \\ 28 & -32 & -9 & 1 \\ -16 & -12 & 22 & 10 \\ 13 & -4 & 18 & 37 \end{pmatrix}$$

and $rank(A) = 4$.

914. Orbit 914 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & 29 & -29 & 23 \\ -21 & 4 & 22 & -5 \\ 79 & 0 & -11 & 24 \\ -7 & 11 & -18 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & -13 & 13 & -11 \\ 9 & -2 & -10 & 3 \\ -35 & 0 & 5 & -10 \\ 3 & -5 & 8 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

915. Orbit 915 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -15 & 1 & 21 & -11 \\ -21 & 4 & -14 & 7 \\ -31 & -6 & 17 & -8 \\ 21 & -3 & 32 & -14 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 7 & -1 & -9 & 3 \\ 9 & -2 & 6 & -1 \\ 15 & 2 & -7 & 6 \\ -9 & 1 & -14 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

916. Orbit 916 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 3 & -6 & 10 & -11 \\ -21 & 0 & -3 & 0 \\ -24 & -6 & 6 & -4 \\ 10 & 8 & 21 & -3 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -1 & 2 & -4 & 3 \\ 9 & 0 & 1 & 2 \\ 12 & 2 & -2 & 4 \\ -4 & -4 & -9 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

917. Orbit 917 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 21 & 1 & -15 & -5 \\ -7 & 22 & 11 & -6 \\ 13 & 5 & 10 & 12 \\ -15 & 4 & -22 & 11 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -9 & -1 & 7 & 1 \\ 3 & -10 & -5 & 4 \\ -5 & -3 & -4 & -4 \\ 7 & -2 & 10 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

918. Orbit 918 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -40 & -18 & 18 & 12 \\ 0 & 18 & -11 & -23 \\ 21 & 4 & 14 & -27 \\ -11 & -18 & -7 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 18 & 8 & -8 & -6 \\ 0 & -8 & 5 & 11 \\ -9 & -2 & -6 & 13 \\ 5 & 8 & 3 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

919. Orbit 919 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 18 & 18 & -4 & -16 \\ -7 & 7 & 7 & 5 \\ -5 & 19 & 11 & 15 \\ 6 & 8 & 8 & 22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -8 & -8 & 2 & 6 \\ 3 & -3 & -3 & -1 \\ 3 & -9 & -5 & -5 \\ -2 & -4 & -4 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

920. Orbit 920 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -15 & -7 & 7 & -5 \\ 11 & 7 & 0 & -6 \\ 2 & 1 & 3 & 4 \\ 14 & -7 & 4 & 11 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 7 & 3 & -3 & 1 \\ -5 & -3 & 0 & 4 \\ 0 & -1 & -1 & 0 \\ -6 & 3 & -2 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

921. Orbit 921 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 36 & 98 & 11 & -35 \\ 0 & -40 & -11 & -59 \\ -66 & 62 & -119 & 13 \\ 36 & -40 & -11 & 65 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -16 & -44 & -5 & 15 \\ 0 & 18 & 5 & 27 \\ 30 & -28 & 53 & -5 \\ -16 & 18 & 5 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

922. Orbit 922 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76}\begin{pmatrix} -50 & -63 & 13 & -14 \\ -11 & 13 & -2 & 14 \\ -65 & 24 & -85 & 14 \\ 74 & 0 & 0 & -122 \end{pmatrix} + \frac{\sqrt{5}}{76}\begin{pmatrix} 24 & 31 & -7 & -10 \\ 3 & -7 & 4 & 10 \\ 35 & -10 & 37 & 10 \\ -34 & 0 & 0 & 54 \end{pmatrix}$$

and $rank(A) = 4$.

923. Orbit 923 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12}\begin{pmatrix} -1 & -1 & -7 & -3 \\ -10 & -25 & 14 & 25 \\ -24 & 10 & -3 & 3 \\ -3 & 22 & 18 & -7 \end{pmatrix} + \frac{\sqrt{5}}{12}\begin{pmatrix} 1 & 1 & 3 & -1 \\ 4 & 11 & -6 & -9 \\ 12 & -4 & 1 & 1 \\ 1 & -10 & -8 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

924. Orbit 924 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -2 & -8 & 14 & -2 \\ 5 & -18 & -3 & -10 \\ 30 & -12 & 5 & -3 \\ -15 & -2 & 20 & -15 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 4 & 18 & -32 & 0 \\ -11 & 40 & 7 & 26 \\ -66 & 26 & -11 & 11 \\ 35 & 4 & -44 & 33 \end{pmatrix}$$

and $rank(A) = 4$.

925. Orbit 925 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 29 & 7 & 21 & 17 \\ -14 & -11 & -7 & -6 \\ -19 & -10 & 15 & -10 \\ -12 & 8 & 1 & -25 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -13 & -3 & -9 & -9 \\ 6 & 5 & 3 & 4 \\ 9 & 4 & -7 & 6 \\ 6 & -4 & -1 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

926. Orbit 926 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -11 & -29 & -8 & 12 \\ 4 & 0 & 15 & -5 \\ 7 & 11 & -4 & -8 \\ 0 & -18 & 19 & -29 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 5 & 13 & 4 & -6 \\ -2 & 0 & -7 & 3 \\ -3 & -5 & 2 & 4 \\ 0 & 8 & -9 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

927. Orbit 927 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 29 & 29 & -51 & -35 \\ -11 & 47 & -11 & 53 \\ -4 & -18 & -4 & 24 \\ 0 & 58 & -28 & 138 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -13 & -13 & 23 & 15 \\ 5 & -21 & 5 & -23 \\ 2 & 8 & 2 & -10 \\ 0 & -26 & 12 & -62 \end{pmatrix}$$

and $rank(A) = 4$.

928. Orbit 928 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & -47 & -4 & -6 \\ -11 & 0 & 18 & 71 \\ -4 & -18 & -4 & 24 \\ 0 & 29 & -10 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & 21 & 2 & 2 \\ 5 & 0 & -8 & -31 \\ 2 & 8 & 2 & -10 \\ 0 & -13 & 4 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

929. Orbit 929 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -87 & 7 & -29 & 1 \\ 0 & 25 & -51 & -12 \\ -69 & -18 & 65 & 6 \\ 32 & 28 & -51 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 39 & -3 & 13 & -1 \\ 0 & -11 & 23 & 6 \\ 31 & 8 & -29 & -2 \\ -14 & -12 & 23 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

930. Orbit 930 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -4 & 18 & -18 & 14 \\ 3 & 0 & 4 & 3 \\ -10 & 7 & 4 & -9 \\ 1 & -3 & 4 & 22 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 2 & -8 & 8 & -8 \\ -1 & 0 & -2 & 1 \\ 6 & -3 & -2 & 7 \\ -1 & 1 & -2 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

931. Orbit 931 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 18 & 3 & 6 & 11 \\ -8 & -5 & 0 & -3 \\ -20 & -3 & -14 & -3 \\ -10 & 11 & 8 & -7 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -8 & -1 & -2 & -7 \\ 2 & 3 & 0 & 3 \\ 10 & 1 & 6 & 3 \\ 4 & -5 & -4 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

932. Orbit 932 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & -33 & 3 & -23 \\ 16 & -1 & -40 & -13 \\ 24 & -14 & 15 & 1 \\ -7 & -18 & -14 & 47 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 15 & -1 & 9 \\ -8 & 1 & 18 & 7 \\ -10 & 6 & -7 & 1 \\ 3 & 8 & 6 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

933. Orbit 933 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 18 & 29 & -6 \\ 11 & 58 & -18 & -23 \\ -19 & -29 & 36 & 2 \\ 33 & 11 & 11 & -47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -8 & -13 & 2 \\ -5 & -26 & 8 & 11 \\ 9 & 13 & -16 & 0 \\ -15 & -5 & -5 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

934. Orbit 934 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 47 & -18 & 29 & -28 \\ 4 & -36 & -29 & 53 \\ -15 & -7 & 65 & 13 \\ 28 & 47 & 29 & 62 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -21 & 8 & -13 & 12 \\ -2 & 16 & 13 & -23 \\ 7 & 3 & -29 & -5 \\ -12 & -21 & -13 & -28 \end{pmatrix}$$

and $rank(A) = 4$.

935. Orbit 935 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 7 & 3 & 26 & -12 \\ 36 & 7 & 26 & -21 \\ -11 & -14 & 18 & 11 \\ -4 & -26 & 26 & 12 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -3 & -1 & -12 & 4 \\ -16 & -3 & -12 & 11 \\ 5 & 6 & -8 & -3 \\ 2 & 12 & -12 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

936. Orbit 936 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 18 & 0 & -29 & 5 \\ 0 & 40 & 11 & -23 \\ 7 & -3 & -4 & 20 \\ -11 & -29 & 22 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -8 & 0 & 13 & -3 \\ 0 & -18 & -5 & 11 \\ -3 & 1 & 2 & -8 \\ 5 & 13 & -10 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

937. Orbit 937 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -7 & -31 & 4 & -12 \\ -15 & -21 & -7 & 5 \\ -1 & -14 & -3 & 8 \\ 7 & -4 & -14 & -11 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 3 & 13 & -2 & 4 \\ 7 & 9 & 3 & -1 \\ 1 & 6 & 1 & -2 \\ -3 & 2 & 6 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

938. Orbit 938 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 40 & 0 & -29 & -75 \\ 47 & -29 & -36 & 46 \\ 22 & 4 & -11 & 71 \\ -37 & -19 & 4 & 102 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -18 & 0 & 13 & 33 \\ -21 & 13 & 16 & -20 \\ -10 & -2 & 5 & -31 \\ 17 & 9 & -2 & -46 \end{pmatrix}$$

and $rank(A) = 4$.

939. Orbit 939 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -54 & 0 & 29 & -17 \\ 0 & 47 & 29 & -12 \\ 29 & 51 & 7 & 13 \\ 3 & 10 & -7 & 44 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 24 & 0 & -13 & 7 \\ 0 & -21 & -13 & 6 \\ -13 & -23 & -3 & -5 \\ -1 & -4 & 3 & -20 \end{pmatrix}$$

and $rank(A) = 4$.

940. Orbit 940 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -14 & -18 & 47 & -35 \\ 36 & 47 & 29 & 24 \\ 36 & 58 & 0 & 42 \\ -8 & 21 & -18 & 69 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 6 & 8 & -21 & 15 \\ -16 & -21 & -13 & -10 \\ -16 & -26 & 0 & -18 \\ 4 & -9 & 8 & -31 \end{pmatrix}$$

and $rank(A) = 4$.

941. Orbit 941 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -6 & -13 & 4 & 3 \\ 5 & 9 & 16 & -2 \\ -5 & -5 & 15 & -3 \\ 12 & 9 & 7 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 14 & 29 & -10 & -9 \\ -11 & -21 & -36 & 8 \\ 13 & 9 & -35 & 11 \\ -26 & -21 & -17 & 14 \end{pmatrix}$$

and $rank(A) = 4$.

942. Orbit 942 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} 7 & 7 & -7 & 9 \\ -22 & 15 & -10 & -13 \\ 3 & 1 & 14 & -14 \\ -4 & -7 & -9 & -14 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -3 & -3 & 3 & -5 \\ 10 & -7 & 4 & 7 \\ -1 & -1 & -6 & 8 \\ 2 & 3 & 3 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

943. Orbit 943 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12}\begin{pmatrix} -11 & 7 & -14 & -8 \\ 10 & 8 & -21 & -15 \\ 13 & 5 & 4 & 16 \\ 6 & 4 & 5 & 15 \end{pmatrix} + \frac{\sqrt{5}}{12}\begin{pmatrix} 5 & -3 & 6 & 2 \\ -4 & -4 & 9 & 9 \\ -5 & -3 & -2 & -4 \\ -2 & -2 & -3 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

944. Orbit 944 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -4 & 7 & 33 & 2 \\ 0 & -25 & 15 & -6 \\ 21 & 26 & 0 & 1 \\ -5 & -14 & -2 & -21 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 2 & -3 & -15 & -2 \\ 0 & 11 & -7 & 4 \\ -9 & -12 & 0 & 1 \\ 3 & 6 & 0 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

945. Orbit 945 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -14 & 10 & 33 & -19 \\ 4 & 3 & 0 & 19 \\ -33 & 22 & 18 & 33 \\ -7 & -1 & 15 & 1 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 6 & -4 & -15 & 7 \\ -2 & -1 & 0 & -7 \\ 15 & -10 & -8 & -13 \\ 3 & 1 & -7 & -1 \end{pmatrix}$$

and $rank(A) = 4$.

946. Orbit 946 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 25 & 4 & -87 & -6 \\ -18 & -18 & -18 & 24 \\ 21 & -32 & -22 & -5 \\ -22 & 40 & -11 & -123 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -11 & -2 & 39 & 2 \\ 8 & 8 & 8 & -10 \\ -9 & 14 & 10 & 3 \\ 10 & -18 & 5 & 55 \end{pmatrix}$$

and $rank(A) = 4$.

947. Orbit 947 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 11 & -29 & -24 \\ -21 & 4 & 22 & -5 \\ -62 & -29 & -11 & -52 \\ 69 & -36 & -18 & -123 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -5 & 13 & 10 \\ 9 & -2 & -10 & 3 \\ 28 & 13 & 5 & 24 \\ -31 & 16 & 8 & 55 \end{pmatrix}$$

and $rank(A) = 4$.

948. Orbit 948 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & 11 & -29 & -24 \\ 8 & -72 & 22 & -52 \\ 108 & 18 & -11 & -23 \\ 22 & 87 & -18 & -47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & -5 & 13 & 10 \\ -4 & 32 & -10 & 24 \\ -48 & -8 & 5 & 11 \\ -10 & -39 & 8 & 21 \end{pmatrix}$$

and $rank(A) = 4$.

949. Orbit 949 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{16} \begin{pmatrix} -4 & -2 & 10 & -6 \\ -17 & -3 & -3 & 13 \\ -24 & -6 & 6 & -6 \\ 21 & 1 & 21 & -21 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} 2 & 0 & -4 & 0 \\ 7 & 1 & 1 & -3 \\ 12 & 2 & -2 & 6 \\ -9 & -1 & -9 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

950. Orbit 950 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & -9 & -1 & -1 \\ 6 & 0 & 6 & 6 \\ 0 & 4 & -4 & 8 \\ 7 & -7 & 7 & -7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 25 & 19 & 3 & -1 \\ -14 & 0 & -14 & -10 \\ 2 & -10 & 10 & -14 \\ -15 & 15 & -15 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

951. Orbit 951 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{16} \begin{pmatrix} 3 & -5 & 6 & -6 \\ -17 & -4 & 1 & 10 \\ -21 & -6 & 2 & -5 \\ 17 & 5 & 17 & -17 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} -1 & 1 & -2 & 0 \\ 7 & 2 & -1 & -2 \\ 11 & 2 & 0 & 5 \\ -7 & -3 & -7 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

952. Orbit 952 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 29 & 18 & -22 & -17 \\ -18 & 18 & 18 & -12 \\ -44 & 4 & 11 & 13 \\ 3 & 4 & 15 & -36 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -13 & -8 & 10 & 7 \\ 8 & -8 & -8 & 6 \\ 20 & -2 & -5 & -5 \\ -1 & -2 & -7 & 16 \end{pmatrix}$$

and $rank(A) = 4$.

953. Orbit 953 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & -76 & 36 & 19 \\ 0 & 18 & -11 & 35 \\ 39 & 4 & 29 & -16 \\ -26 & 4 & 4 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & 34 & -16 & -9 \\ 0 & -8 & 5 & -15 \\ -17 & -2 & -13 & 8 \\ 12 & -2 & -2 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

954. Orbit 954 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 17 & 17 & -25 & -21 \\ 19 & 4 & -15 & -4 \\ -13 & -37 & -50 & 14 \\ -3 & 22 & 18 & -7 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -7 & -7 & 11 & 7 \\ -9 & -2 & 7 & 4 \\ 7 & 17 & 22 & -4 \\ 1 & -10 & -8 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

955. Orbit 955 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 0 & -5 & -1 \\ 0 & 5 & 2 & -3 \\ 2 & 3 & -1 & -2 \\ 2 & -2 & 0 & -8 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 10 & 0 & 13 & -1 \\ -2 & -11 & -6 & 11 \\ -4 & -7 & 3 & 6 \\ -4 & 4 & -2 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

956. Orbit 956 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -5 & 1 & -1 & 1 \\ 3 & -1 & -2 & -4 \\ 1 & 2 & 6 & 1 \\ -5 & 0 & 1 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 13 & -1 & 1 & -5 \\ -7 & 3 & 4 & 12 \\ -1 & -4 & -14 & 1 \\ 13 & 0 & -3 & 12 \end{pmatrix}$$

and $rank(A) = 4$.

957. Orbit 957 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -15 & 1 & -8 & 10 \\ 17 & 4 & -8 & -7 \\ 0 & -2 & -12 & -2 \\ 4 & -7 & 14 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 35 & -3 & 18 & -26 \\ -39 & -8 & 18 & 19 \\ 2 & 4 & 26 & 8 \\ -8 & 15 & -32 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

958. Orbit 958 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{76} \begin{pmatrix} -37 & 11 & -15 & -77 \\ -18 & 46 & -61 & -19 \\ 57 & 26 & 50 & -19 \\ 2 & -61 & -96 & -85 \end{pmatrix} + \frac{\sqrt{5}}{76} \begin{pmatrix} 17 & -3 & 11 & 21 \\ -2 & -16 & 27 & 19 \\ -19 & -14 & -24 & 19 \\ -4 & 27 & 40 & 37 \end{pmatrix}$$

and $rank(A) = 4$.

959. Orbit 959 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -21 & -15 & -15 & -41 \\ -13 & -1 & -29 & 5 \\ 35 & 15 & 15 & 19 \\ -7 & -29 & -43 & 65 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 9 & 7 & 7 & 17 \\ 5 & 1 & 13 & -1 \\ -15 & -7 & -7 & -7 \\ 3 & 13 & 19 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

960. Orbit 960 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & -1 & 2 & -1 \\ -3 & 2 & 2 & -1 \\ -3 & 1 & 2 & -4 \\ -4 & 0 & -2 & -6 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 8 & 1 & -4 & -1 \\ 5 & -6 & -4 & 5 \\ 7 & -3 & -4 & 12 \\ 10 & 2 & 4 & 12 \end{pmatrix}$$

and $rank(A) = 4$.

961. Orbit 961 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -1 & 0 & 19 & 6 \\ 0 & -7 & 4 & -7 \\ 9 & 12 & 7 & -4 \\ -6 & -3 & 2 & -35 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & 0 & -9 & -4 \\ 0 & 3 & -2 & 5 \\ -3 & -6 & -3 & 4 \\ 4 & 1 & -2 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

962. Orbit 962 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 11 & -3 & -11 & -7 \\ 13 & -24 & 1 & -4 \\ -5 & 7 & 14 & -22 \\ 19 & 8 & 4 & -29 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -5 & 1 & 5 & 1 \\ -7 & 10 & -1 & 4 \\ 3 & -3 & -6 & 12 \\ -9 & -4 & -2 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

963. Orbit 963 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 65 & 62 & -22 & 41 \\ -7 & -29 & -7 & 35 \\ 21 & -25 & -4 & -52 \\ 7 & 22 & -69 & -54 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -29 & -28 & 10 & -19 \\ 3 & 13 & 3 & -15 \\ -9 & 11 & 2 & 24 \\ -3 & -10 & 31 & 24 \end{pmatrix}$$

and $rank(A) = 4$.

964. Orbit 964 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -7 & 1 & -21 & 5 \\ 17 & -4 & -3 & -10 \\ 3 & 3 & -20 & -2 \\ -1 & 6 & 14 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 17 & -3 & 47 & -15 \\ -39 & 10 & 7 & 26 \\ -5 & -7 & 44 & 8 \\ 3 & -14 & -32 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

965. Orbit 965 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & -1 & -6 & 7 \\ 0 & -7 & 0 & 9 \\ -10 & 1 & 6 & 3 \\ -2 & 5 & 6 & 13 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -10 & 3 & 14 & -19 \\ -2 & 17 & 0 & -17 \\ 24 & -3 & -14 & -3 \\ 4 & -11 & -14 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

966. Orbit 966 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 0 & -58 & 36 & 30 \\ -36 & 18 & -11 & -1 \\ 50 & -3 & 29 & 2 \\ -44 & -43 & 4 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 0 & 26 & -16 & -14 \\ 16 & -8 & 5 & 1 \\ -22 & 1 & -13 & 0 \\ 20 & 19 & -2 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

967. Orbit 967 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -16 & -6 & -6 & -6 \\ 6 & 7 & -21 & 2 \\ -3 & 4 & 13 & -4 \\ -1 & 5 & -2 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 36 & 14 & 14 & 10 \\ -16 & -15 & 47 & -2 \\ 9 & -10 & -29 & 12 \\ 1 & -11 & 4 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

968. Orbit 968 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -25 & -8 & -4 & 3 \\ 6 & 10 & -26 & -6 \\ -3 & 5 & 18 & -4 \\ -6 & 7 & 4 & -31 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 11 & 4 & 2 & -3 \\ -4 & -4 & 12 & 4 \\ 3 & -3 & -8 & 4 \\ 2 & -3 & -2 & 13 \end{pmatrix}$$

and $rank(A) = 4$.

969. Orbit 969 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -11 & 36 & -40 & 23 \\ 19 & -40 & 123 & 28 \\ 39 & -25 & 47 & 17 \\ 33 & -29 & -36 & 4 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & -16 & 18 & -11 \\ -9 & 18 & -55 & -12 \\ -17 & 11 & -21 & -7 \\ -15 & 13 & 16 & -2 \end{pmatrix}$$

and $rank(A) = 4$.

970. Orbit 970 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & 4 & 0 & 7 \\ 7 & -4 & 0 & 1 \\ 7 & -18 & -22 & 15 \\ -1 & -4 & 8 & -3 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & -2 & 0 & -5 \\ -3 & 2 & 0 & 1 \\ -3 & 8 & 10 & -5 \\ 1 & 2 & -4 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

971. Orbit 971 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & 3 & -3 & -3 \\ 3 & -3 & 7 & 9 \\ 1 & 3 & -7 & 3 \\ 7 & 9 & -5 & -1 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & -7 & 7 & 3 \\ -7 & 7 & -15 & -17 \\ -1 & -7 & 15 & -3 \\ -15 & -21 & 9 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

972. Orbit 972 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -22 & -22 & 0 & -12 \\ 45 & -29 & 7 & -9 \\ 16 & -32 & 54 & -6 \\ 19 & -11 & -25 & -17 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 10 & 10 & 0 & 4 \\ -21 & 13 & -3 & 5 \\ -6 & 14 & -24 & 4 \\ -9 & 5 & 11 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

973. Orbit 973 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -18 & 11 & 0 & 17 \\ -17 & -7 & 0 & -6 \\ -8 & 0 & -14 & -10 \\ 13 & 10 & 0 & -3 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 8 & -5 & 0 & -9 \\ 7 & 3 & 0 & 4 \\ 4 & 0 & 6 & 6 \\ -5 & -4 & 0 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

974. Orbit 974 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 0 & -7 & -18 & -1 \\ 1 & -18 & 0 & 1 \\ -4 & 0 & -7 & 1 \\ -5 & 17 & -11 & 19 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 0 & 3 & 8 & -1 \\ -1 & 8 & 0 & 1 \\ 2 & 0 & 3 & 1 \\ 3 & -7 & 5 & -9 \end{pmatrix}$$

and $rank(A) = 4$.

975. Orbit 975 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 18 & -14 & -7 & -7 \\ 16 & 0 & 0 & -4 \\ 7 & 0 & 11 & 0 \\ -13 & -2 & -4 & 23 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -8 & 6 & 3 & 1 \\ -8 & 0 & 0 & 4 \\ -3 & 0 & -5 & 2 \\ 7 & 2 & 2 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

976. Orbit 976 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 4 & 0 & -7 & 13 \\ -4 & 4 & -10 & -6 \\ 2 & -3 & 8 & -3 \\ -4 & -7 & 5 & -8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -2 & 0 & 3 & -7 \\ 2 & -2 & 4 & 4 \\ 0 & 1 & -4 & 3 \\ 2 & 3 & -3 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

977. Orbit 977 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 22 & -21 & 12 & 13 \\ -15 & -68 & -6 & 23 \\ -12 & -14 & 15 & 1 \\ -11 & -3 & 41 & 83 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -10 & 9 & -6 & -7 \\ 7 & 30 & 2 & -9 \\ 6 & 6 & -7 & 1 \\ 5 & 1 & -19 & -37 \end{pmatrix}$$

and $rank(A) = 4$.

978. Orbit 978 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -18 & 36 & -37 & -39 \\ -7 & 47 & 4 & -8 \\ 3 & 15 & 0 & 10 \\ 14 & 4 & -17 & 65 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 8 & -16 & 17 & 17 \\ 3 & -21 & -2 & 4 \\ -1 & -7 & 0 & -4 \\ -6 & -2 & 7 & -29 \end{pmatrix}$$

and $rank(A) = 4$.

979. Orbit 979 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -29 & 7 & -29 & 1 \\ -29 & -22 & 25 & -12 \\ -51 & -47 & 18 & 42 \\ -15 & 10 & -22 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 13 & -3 & 13 & -1 \\ 13 & 10 & -11 & 6 \\ 23 & 21 & -8 & -18 \\ 7 & -4 & 10 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

980. Orbit 980 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 10 & -5 & -6 & 9 \\ -11 & 28 & 12 & -9 \\ 6 & -4 & -3 & 5 \\ 21 & 7 & 15 & -7 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -4 & 3 & 2 & -5 \\ 5 & -12 & -6 & 5 \\ -2 & 2 & 1 & -1 \\ -9 & -3 & -7 & 3 \end{pmatrix}$$

and $rank(A) = 4$.

981. Orbit 981 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 10 & -5 & -6 & -5 \\ -4 & 14 & 15 & -5 \\ 2 & -4 & -10 & -6 \\ 10 & 7 & -3 & -14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -4 & 3 & 2 & 1 \\ 2 & -6 & -7 & 3 \\ 0 & 2 & 4 & 4 \\ -4 & -3 & 1 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

982. Orbit 982 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & 1 & 2 & 1 \\ 1 & 7 & 4 & 4 \\ -8 & 2 & -4 & 2 \\ 5 & 4 & 2 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -4 & -3 & -6 & -5 \\ -3 & -15 & -8 & -6 \\ 20 & -6 & 8 & -2 \\ -9 & -10 & -6 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

983. Orbit 983 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -25 & 5 & -5 & -1 \\ 32 & 14 & 8 & 10 \\ -11 & 19 & 17 & 3 \\ 4 & -6 & 0 & -4 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 55 & -11 & 11 & -1 \\ -74 & -32 & -18 & -20 \\ 27 & -43 & -37 & -3 \\ -8 & 14 & 0 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

984. Orbit 984 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8} \begin{pmatrix} 54 & 14 & 29 & -1 \\ -3 & 4 & -7 & 34 \\ -16 & -25 & 7 & -28 \\ 13 & -7 & -7 & -21 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -24 & -6 & -13 & -1 \\ 1 & -2 & 3 & -14 \\ 8 & 11 & -3 & 14 \\ -5 & 3 & 3 & 9 \end{pmatrix}
$$

and $rank(A) = 4$.

985. Orbit 985 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{12} \begin{pmatrix} 28 & -2 & -19 & 3 \\ -14 & 26 & 11 & -3 \\ 12 & 6 & 9 & 11 \\ -8 & 4 & -33 & -7 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -12 & 0 & 9 & -3 \\ 6 & -12 & -5 & 3 \\ -4 & -4 & -3 & -3 \\ 4 & -2 & 15 & 3 \end{pmatrix}
$$

and $rank(A) = 4$.

986. Orbit 986 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8} \begin{pmatrix} -26 & -29 & -27 & 2 \\ 5 & 18 & 23 & -10 \\ 14 & 22 & -8 & -8 \\ 7 & -25 & 20 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 12 & 13 & 13 & -2 \\ -3 & -8 & -11 & 6 \\ -6 & -10 & 4 & 4 \\ -3 & 11 & -10 & 10 \end{pmatrix}
$$

and $rank(A) = 4$.

987. Orbit 987 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -11 & 0 & -26 & 1 \\ 4 & 18 & 4 & -12 \\ 7 & 11 & -4 & -8 \\ 0 & -7 & 12 & 11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 5 & 0 & 12 & -1 \\ -2 & -8 & -2 & 6 \\ -3 & -5 & 2 & 4 \\ 0 & 3 & -6 & -5 \end{pmatrix}
$$

and $rank(A) = 4$.

988. Orbit 988 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -40 & 14 & -29 & -9 \\ -11 & 21 & -8 & -6 \\ -44 & -18 & 25 & 19 \\ -1 & 9 & -26 & 8 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 18 & -6 & 13 & 3 \\ 5 & -9 & 4 & 4 \\ 20 & 8 & -11 & -7 \\ 1 & -3 & 12 & -4 \end{pmatrix}$$

and $rank(A) = 4$.

989. Orbit 989 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 25 & 14 & 18 & 9 \\ -11 & -8 & 10 & 5 \\ 3 & 0 & -4 & 5 \\ -5 & -2 & 10 & -21 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -11 & -6 & -8 & -5 \\ 5 & 4 & -4 & -1 \\ -1 & 0 & 2 & -1 \\ 3 & 2 & -4 & 9 \end{pmatrix}$$

and $rank(A) = 4$.

990. Orbit 990 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 25 & 3 & -11 & -9 \\ 0 & 3 & 21 & 16 \\ 32 & 11 & -22 & 5 \\ -23 & -13 & 10 & -28 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -11 & -1 & 5 & 3 \\ 0 & -1 & -9 & -6 \\ -14 & -5 & 10 & -1 \\ 11 & 7 & -4 & 12 \end{pmatrix}$$

and $rank(A) = 4$.

991. Orbit 991 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \le 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -14 & 14 & -8 & -34 \\ -9 & 17 & -11 & 9 \\ 13 & 15 & 15 & 5 \\ 4 & -18 & -32 & 18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 6 & -6 & 4 & 14 \\ 3 & -7 & 5 & -3 \\ -5 & -7 & -7 & -1 \\ -2 & 8 & 14 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

992. Orbit 992 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 22 & -40 & 25 & 1 \\ 37 & 3 & -40 & -30 \\ -26 & -36 & -7 & -41 \\ 11 & 29 & 22 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -10 & 18 & -11 & -1 \\ -17 & -1 & 18 & 14 \\ 12 & 16 & 3 & 19 \\ -5 & -13 & -10 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

993. Orbit 993 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 22 & 7 & -4 & -17 \\ 37 & -15 & -29 & -1 \\ -26 & -7 & -25 & 6 \\ 11 & 29 & 22 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -10 & -3 & 2 & 7 \\ -17 & 7 & 13 & 1 \\ 12 & 3 & 11 & -2 \\ -5 & -13 & -10 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

994. Orbit 994 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 15 & 14 & 3 & 20 \\ -13 & -5 & 10 & -2 \\ -23 & -7 & -7 & 5 \\ -7 & 4 & 8 & -3 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -7 & -6 & -1 & -10 \\ 5 & 3 & -4 & 2 \\ 11 & 3 & 3 & -1 \\ 3 & -2 & -4 & 1 \end{pmatrix}$$

and $rank(A) = 4$.

995. Orbit 995 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -101 & 29 & 29 & 1 \\ -29 & 65 & 29 & -59 \\ 29 & 51 & 7 & -23 \\ 21 & -1 & -7 & 15 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 45 & -13 & -13 & -1 \\ 13 & -29 & -13 & 27 \\ -13 & -23 & -3 & 11 \\ -9 & 1 & 3 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

996. Orbit 996 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -25 & 0 & 8 & 1 \\ -13 & 18 & 16 & -9 \\ 16 & 17 & 7 & -2 \\ 0 & -1 & 1 & 2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 55 & 0 & -18 & -5 \\ 29 & -40 & -36 & 23 \\ -36 & -39 & -15 & 8 \\ 2 & 5 & -3 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

997. Orbit 997 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 14 & -29 & 26 & 41 \\ 11 & -7 & 36 & -12 \\ -73 & -21 & 51 & -59 \\ 54 & -7 & 33 & -58 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -6 & 13 & -12 & -19 \\ -5 & 3 & -16 & 6 \\ 33 & 9 & -23 & 27 \\ -24 & 3 & -15 & 26 \end{pmatrix}$$

and $rank(A) = 4$.

998. Orbit 998 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -44 & -65 & 26 & 19 \\ 11 & 87 & 94 & -48 \\ 21 & -21 & 15 & -1 \\ 90 & 51 & 55 & -58 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 20 & 29 & -12 & -9 \\ -5 & -39 & -42 & 22 \\ -9 & 9 & -7 & 1 \\ -40 & -23 & -25 & 26 \end{pmatrix}$$

and $rank(A) = 4$.

999. Orbit 999 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -11 & 32 & 7 & 2 \\ 0 & -21 & 12 & -35 \\ 10 & 19 & -14 & -9 \\ 13 & -28 & -9 & -40 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 5 & -14 & -3 & -2 \\ 0 & 9 & -6 & 17 \\ -4 & -9 & 6 & 5 \\ -5 & 12 & 3 & 18 \end{pmatrix}$$

and $rank(A) = 4$.

1000. Orbit 1000 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -1 & 5 & 1 & 3 \\ 0 & -10 & 6 & -4 \\ 6 & 4 & -8 & -2 \\ 5 & -7 & -5 & -17 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 3 & -11 & -3 & -9 \\ 0 & 22 & -14 & 12 \\ -12 & -10 & 18 & 8 \\ -9 & 15 & 9 & 37 \end{pmatrix}
$$

and $rank(A) = 4$.

1001. Orbit 1001 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} 7 & 18 & 22 & 19 \\ 0 & -36 & 22 & -30 \\ 25 & 51 & 0 & -12 \\ 10 & -25 & -28 & -43 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & -8 & -10 & -9 \\ 0 & 16 & -10 & 14 \\ -11 & -23 & 0 & 6 \\ -4 & 11 & 12 & 19 \end{pmatrix}
$$

and $rank(A) = 4$.

1002. Orbit 1002 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -40 & -11 & 22 & 1 \\ 29 & -36 & 11 & -12 \\ 25 & 4 & -29 & 6 \\ -8 & -7 & -10 & -61 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 18 & 5 & -10 & -1 \\ -13 & 16 & -5 & 6 \\ -11 & -2 & 13 & -2 \\ 4 & 3 & 4 & 27 \end{pmatrix}
$$

and $rank(A) = 4$.

1003. Orbit 1003 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4} \begin{pmatrix} -65 & 51 & -29 & 1 \\ -86 & 44 & 22 & -30 \\ 3 & -69 & -11 & 53 \\ 4 & 4 & -18 & -18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 29 & -23 & 13 & -1 \\ 38 & -20 & -10 & 14 \\ -1 & 31 & 5 & -23 \\ -2 & -2 & 8 & 8 \end{pmatrix}
$$

and $rank(A) = 4$.

1004. Orbit 1004 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -3 & 8 & -6 & -9 \\ -6 & 18 & -1 & -1 \\ 1 & 4 & 7 & 0 \\ 0 & 4 & -6 & 18 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 7 & -18 & 14 & 19 \\ 14 & -40 & 3 & 5 \\ 1 & -10 & -15 & 4 \\ 2 & -10 & 12 & -40 \end{pmatrix}$$

and $rank(A) = 4$.

1005. Orbit 1005 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 72 & 0 & -8 & 30 \\ -21 & -29 & 15 & 13 \\ -40 & -18 & -4 & -4 \\ -11 & 11 & 19 & 47 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -32 & 0 & 4 & -14 \\ 9 & 13 & -7 & -5 \\ 18 & 8 & 2 & 2 \\ 5 & -5 & -9 & -21 \end{pmatrix}$$

and $rank(A) = 4$.

1006. Orbit 1006 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -15 & -11 & 2 & 2 \\ 5 & 18 & 1 & -10 \\ -4 & -7 & 3 & -8 \\ 14 & -14 & 2 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 7 & 5 & 0 & -2 \\ -3 & -8 & -1 & 6 \\ 2 & 3 & -1 & 4 \\ -6 & 6 & -2 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

1007. Orbit 1007 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -1 & -11 & -6 & -4 \\ 2 & 0 & 2 & 10 \\ 3 & 4 & -1 & 6 \\ -4 & 15 & -1 & 14 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 1 & 5 & 4 & 0 \\ -2 & 0 & -2 & -2 \\ -1 & -2 & 1 & -2 \\ 2 & -7 & -1 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

1008. Orbit 1008 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -17 & -35 & -1 & -49 \\ 11 & 16 & -69 & -28 \\ 50 & -8 & 35 & -11 \\ -8 & -43 & -51 & 0 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 7 & 17 & 3 & 15 \\ -11 & -4 & 31 & 18 \\ -18 & 2 & -17 & 11 \\ 2 & 19 & 21 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

1009. Orbit 1009 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{16} \begin{pmatrix} 23 & -5 & 10 & -2 \\ -1 & -2 & -18 & -5 \\ -20 & -10 & -10 & -2 \\ -14 & 7 & 4 & 25 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} -11 & 3 & -4 & -2 \\ -1 & 2 & 8 & 5 \\ 10 & 4 & 4 & 4 \\ 6 & -3 & -2 & -11 \end{pmatrix}$$

and $rank(A) = 4$.

1010. Orbit 1010 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & 3 & 3 & -23 \\ 9 & 17 & -18 & -2 \\ 6 & -3 & 15 & -6 \\ 4 & -11 & -14 & 7 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & -1 & -1 & 9 \\ -5 & -7 & 8 & 2 \\ -2 & 1 & -7 & 4 \\ -2 & 5 & 6 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

1011. Orbit 1011 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 51 & -22 & 25 & 12 \\ 84 & -15 & -47 & -30 \\ -44 & -54 & -25 & -23 \\ 11 & 47 & 69 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -23 & 10 & -11 & -6 \\ -38 & 7 & 21 & 14 \\ 20 & 24 & 11 & 11 \\ -5 & -21 & -31 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

1012. Orbit 1012 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & -3 & -11 & 13 \\ -6 & -6 & -22 & -2 \\ -4 & -10 & -4 & -6 \\ 21 & 13 & -7 & -35 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & 1 & 5 & -7 \\ 2 & 2 & 10 & 2 \\ 2 & 4 & 2 & 4 \\ -9 & -5 & 3 & 15 \end{pmatrix}$$

and $rank(A) = 4$.

1013. Orbit 1013 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} 10 & 18 & -10 & 6 \\ -11 & 4 & 15 & -18 \\ 20 & 12 & -11 & 3 \\ 5 & -32 & 2 & -17 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} -4 & -8 & 4 & -4 \\ 5 & -2 & -7 & 10 \\ -8 & -6 & 5 & 1 \\ -1 & 14 & -2 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

1014. Orbit 1014 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -14 & 12 & -11 & 3 \\ -12 & -9 & 1 & -14 \\ 20 & -8 & 14 & 18 \\ -6 & 23 & 4 & 11 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 6 & -6 & 5 & -3 \\ 4 & 3 & -1 & 8 \\ -8 & 4 & -6 & -6 \\ 2 & -11 & -2 & -5 \end{pmatrix}$$

and $rank(A) = 4$.

1015. Orbit 1015 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -2 & 1 & -13 & 2 \\ 17 & -4 & -3 & -4 \\ 5 & 3 & -17 & -7 \\ -4 & 6 & 9 & -5 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 6 & -3 & 29 & -8 \\ -39 & 10 & 7 & 12 \\ -9 & -7 & 37 & 19 \\ 10 & -14 & -21 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

1016. Orbit 1016 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & 25 & -22 & 59 \\ -39 & -15 & 58 & 46 \\ -44 & 22 & 22 & 6 \\ -7 & 18 & 22 & -11 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -2 & -11 & 10 & -27 \\ 17 & 7 & -26 & -20 \\ 20 & -10 & -10 & -2 \\ 3 & -8 & -10 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

1017. Orbit 1017 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{2} \begin{pmatrix} 1 & -1 & -4 & -2 \\ -1 & 1 & -2 & 2 \\ 3 & -1 & -1 & -1 \\ -2 & 2 & -5 & 5 \end{pmatrix} + \frac{\sqrt{5}}{10} \begin{pmatrix} -2 & 2 & 9 & 3 \\ 2 & -2 & 5 & -3 \\ -6 & 2 & 2 & 4 \\ 5 & -5 & 10 & -12 \end{pmatrix}$$

and $rank(A) = 4$.

1018. Orbit 1018 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -40 & -11 & 0 & -35 \\ 66 & 0 & 36 & 28 \\ -1 & -54 & 36 & 17 \\ 33 & -29 & -36 & 62 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 18 & 5 & 0 & 15 \\ -30 & 0 & -16 & -12 \\ 1 & 24 & -16 & -7 \\ -15 & 13 & 16 & -28 \end{pmatrix}$$

and $rank(A) = 4$.

1019. Orbit 1019 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -8 & 6 & 3 & 9 \\ -8 & 0 & 0 & -4 \\ -3 & 0 & -5 & -6 \\ 7 & 2 & 2 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 18 & -14 & -7 & -23 \\ 16 & 0 & 0 & 12 \\ 7 & 0 & 11 & 16 \\ -13 & -2 & -4 & 7 \end{pmatrix}$$

and $rank(A) = 4$.

1020. Orbit 1020 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -40 & 22 & -7 & -17 \\ -50 & -22 & -22 & 6 \\ -29 & 0 & -47 & 10 \\ 3 & 28 & -40 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 18 & -10 & 3 & 7 \\ 22 & 10 & 10 & -2 \\ 13 & 0 & 21 & -4 \\ -1 & -12 & 18 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

1021. Orbit 1021 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -15 & 10 & 8 & -17 \\ 18 & -22 & -7 & 3 \\ -8 & 7 & 4 & -19 \\ -33 & -11 & -25 & -25 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 7 & -4 & -4 & 7 \\ -8 & 10 & 3 & -1 \\ 4 & -3 & -2 & 9 \\ 15 & 5 & 11 & 11 \end{pmatrix}$$

and $rank(A) = 4$.

1022. Orbit 1022 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -4 & -7 & -17 & 2 \\ 8 & 7 & 10 & -13 \\ -23 & 1 & -7 & -9 \\ 9 & 15 & -6 & -10 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 2 & 3 & 7 & -2 \\ -4 & -3 & -4 & 7 \\ 11 & -1 & 3 & 5 \\ -3 & -7 & 2 & 4 \end{pmatrix}$$

and $rank(A) = 4$.

1023. Orbit 1023 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 22 & 7 & 11 & -6 \\ -4 & -2 & -5 & 15 \\ -5 & -10 & 5 & -12 \\ 7 & -5 & 1 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -48 & -15 & -25 & 10 \\ 8 & 4 & 11 & -31 \\ 13 & 22 & -11 & 30 \\ -13 & 11 & -3 & 5 \end{pmatrix}$$

and $rank(A) = 4$.

1024. Orbit 1024 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -4 & 0 & -37 & 19 \\ 8 & 18 & -3 & -23 \\ 7 & 11 & -4 & -22 \\ -11 & -7 & 30 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 2 & 0 & 17 & -9 \\ -4 & -8 & 1 & 11 \\ -3 & -5 & 2 & 10 \\ 5 & 3 & -14 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

1025. Orbit 1025 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -29 & -37 & 1 \\ -3 & 0 & 26 & -23 \\ -4 & 11 & 14 & -15 \\ 0 & -18 & 19 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 13 & 17 & -1 \\ 1 & 0 & -12 & 11 \\ 2 & -5 & -6 & 7 \\ 0 & 8 & -9 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

1026. Orbit 1026 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -58 & 7 & -76 & -39 \\ -11 & 43 & 14 & -12 \\ -51 & -29 & 7 & 35 \\ -26 & -1 & -33 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 26 & -3 & 34 & 17 \\ 5 & -19 & -6 & 6 \\ 23 & 13 & -3 & -15 \\ 12 & 1 & 15 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

1027. Orbit 1027 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -58 & 25 & -29 & -10 \\ -29 & 25 & -4 & -30 \\ -98 & -47 & 36 & 35 \\ 3 & 17 & -33 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 26 & -11 & 13 & 4 \\ 13 & -11 & 2 & 14 \\ 44 & 21 & -16 & -15 \\ -1 & -7 & 15 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

1028. Orbit 1028 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -40 & 36 & -29 & 19 \\ 18 & -4 & -4 & -12 \\ -98 & -11 & 36 & -1 \\ 10 & -1 & -33 & 22 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} 18 & -16 & 13 & -9 \\ -8 & 2 & 2 & 6 \\ 44 & 5 & -16 & 1 \\ -4 & 1 & 15 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

1029. Orbit 1029 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -4 & -26 & 18 & -2 \\ 22 & -4 & 3 & -9 \\ 21 & 18 & 14 & 9 \\ 9 & -6 & -1 & 30 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 2 & 12 & -8 & 0 \\ -10 & 2 & -1 & 5 \\ -9 & -8 & -6 & -3 \\ -3 & 4 & 1 & -14 \end{pmatrix}$$

and $rank(A) = 4$.

1030. Orbit 1030 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44}\begin{pmatrix} -34 & 8 & -1 & -75 \\ 11 & 59 & -95 & -45 \\ 24 & -51 & 104 & -11 \\ 35 & -86 & -94 & 43 \end{pmatrix} + \frac{\sqrt{5}}{44}\begin{pmatrix} 14 & -2 & 3 & 27 \\ -11 & -23 & 43 & 25 \\ -6 & 21 & -48 & 11 \\ -17 & 38 & 40 & -19 \end{pmatrix}$$

and $rank(A) = 4$.

1031. Orbit 1031 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 6 & 7 & -4 & 9 \\ 1 & -2 & 5 & 10 \\ -16 & 1 & 6 & -1 \\ 1 & 8 & 9 & 0 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -14 & -15 & 10 & -23 \\ -5 & 6 & -11 & -20 \\ 38 & -3 & -14 & 5 \\ -3 & -18 & -21 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

1032. Orbit 1032 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 22 & 7 & -4 & 19 \\ 19 & -15 & 0 & 10 \\ -37 & -7 & -7 & -1 \\ 4 & 29 & 33 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -10 & -3 & 2 & -9 \\ -9 & 7 & 0 & -4 \\ 17 & 3 & 3 & 1 \\ -2 & -13 & -15 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

1033. Orbit 1033 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 51 & -29 & 29 & 1 \\ 29 & -29 & 29 & -1 \\ 29 & -43 & 7 & -23 \\ 21 & -1 & -7 & -79 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -23 & 13 & -13 & -1 \\ -13 & 13 & -13 & 1 \\ -13 & 19 & -3 & 11 \\ -9 & 1 & 3 & 35 \end{pmatrix}$$

and $rank(A) = 4$.

1034. Orbit 1034 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -1 & 0 & -5 & -4 \\ -5 & 0 & 8 & -1 \\ 8 & -4 & 7 & 11 \\ -8 & 2 & 6 & 2 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} 1 & 0 & 11 & 6 \\ 11 & 0 & -18 & 5 \\ -18 & 8 & -15 & -21 \\ 20 & -2 & -14 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

1035. Orbit 1035 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{16} \begin{pmatrix} 4 & -10 & -1 & 11 \\ -6 & -7 & -4 & -7 \\ 4 & 21 & -5 & -14 \\ 20 & -6 & 10 & -22 \end{pmatrix} + \frac{\sqrt{5}}{16} \begin{pmatrix} 0 & 4 & -1 & -7 \\ 2 & 3 & 2 & 5 \\ 0 & -11 & 1 & 8 \\ -8 & 2 & -6 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

1036. Orbit 1036 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -25 & 32 & -26 & 5 \\ 38 & -64 & -26 & -24 \\ 7 & -39 & -64 & 8 \\ 34 & 31 & -40 & -103 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 13 & -14 & 10 & -7 \\ -18 & 28 & 10 & 16 \\ -1 & 15 & 28 & 2 \\ -8 & -17 & 12 & 43 \end{pmatrix}$$

and $rank(A) = 4$.

1037. Orbit 1037 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 2 & 10 & 5 & -7 \\ 5 & -8 & -4 & 11 \\ 15 & 11 & -1 & 9 \\ 4 & 9 & -4 & 15 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -4 & -22 & -9 & 13 \\ -13 & 18 & 8 & -21 \\ -33 & -25 & 3 & -19 \\ -8 & -21 & 6 & -33 \end{pmatrix}$$

and $rank(A) = 4$.

1038. Orbit 1038 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 9 & -4 & 4 & -1 \\ 8 & -2 & -10 & -4 \\ -7 & -7 & -4 & -2 \\ -2 & 5 & 6 & 7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -21 & 10 & -8 & -1 \\ -20 & 6 & 22 & 12 \\ 17 & 15 & 8 & 8 \\ 4 & -11 & -14 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

1039. Orbit 1039 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} -3 & 3 & 3 & -23 \\ -9 & -1 & -14 & 2 \\ -5 & 8 & 4 & 5 \\ -3 & -4 & -21 & 14 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} 1 & -1 & -1 & 9 \\ 3 & 1 & 6 & 0 \\ 3 & -4 & -2 & -1 \\ 1 & 2 & 9 & -6 \end{pmatrix}$$

and $rank(A) = 4$.

1040. Orbit 1040 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} 33 & -26 & -32 & -15 \\ 127 & -44 & -38 & 21 \\ 78 & 19 & -141 & -132 \\ -44 & 89 & -7 & -64 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} -11 & 10 & 14 & -1 \\ -59 & 22 & 18 & -3 \\ -30 & -9 & 61 & 66 \\ 22 & -41 & 1 & 28 \end{pmatrix}$$

and $rank(A) = 4$.

1041. Orbit 1041 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 3 & 1 & -5 & -11 \\ 20 & -4 & 2 & 4 \\ 5 & 3 & -17 & -17 \\ -12 & 6 & -4 & -10 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -5 & -3 & 11 & 21 \\ -46 & 10 & -4 & -6 \\ -9 & -7 & 37 & 41 \\ 28 & -14 & 8 & 22 \end{pmatrix}$$

and $rank(A) = 4$.

1042. Orbit 1042 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & 1 & -1 & 4 \\ -5 & -2 & 1 & 4 \\ -7 & 1 & 1 & 1 \\ -4 & 2 & 1 & 7 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -10 & -1 & 3 & -12 \\ 9 & 6 & -3 & -6 \\ 17 & -3 & -3 & 1 \\ 8 & -4 & -3 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

1043. Orbit 1043 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & 25 & -22 & 37 \\ -28 & -15 & 40 & 39 \\ -37 & 22 & 11 & 10 \\ -3 & 18 & 15 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -2 & -11 & 10 & -17 \\ 12 & 7 & -18 & -17 \\ 17 & -10 & -5 & -4 \\ 1 & -8 & -7 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

1044. Orbit 1044 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} 4 & 6 & 0 & -2 \\ -2 & 2 & -4 & 4 \\ 3 & 1 & -5 & 1 \\ 1 & -1 & -5 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -8 & -14 & 0 & 2 \\ 4 & -4 & 10 & -6 \\ -5 & -3 & 11 & 1 \\ -1 & 1 & 9 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

1045. Orbit 1045 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -1 & -2 & -3 & -2 \\ -2 & 2 & 6 & 4 \\ 1 & -2 & 0 & 1 \\ 4 & 4 & -7 & 5 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 3 & 4 & 7 & 2 \\ 4 & -4 & -12 & -6 \\ -1 & 4 & 0 & 1 \\ -8 & -10 & 13 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

1046. Orbit 1046 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8}\begin{pmatrix} -33 & 33 & 11 & 13 \\ -31 & 7 & 0 & -6 \\ -11 & 0 & -18 & -9 \\ 9 & 2 & 7 & -22 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 15 & -15 & -5 & -7 \\ 13 & -3 & 0 & 4 \\ 5 & 0 & 8 & 5 \\ -3 & 0 & -3 & 10 \end{pmatrix}$$

and $rank(A) = 4$.

1047. Orbit 1047 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4}\begin{pmatrix} -3 & -4 & 1 & -4 \\ 7 & -1 & -1 & 1 \\ -8 & 3 & -5 & 2 \\ -2 & 4 & -1 & 3 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} 7 & 8 & -3 & 6 \\ -17 & 3 & 3 & 1 \\ 18 & -7 & 11 & -2 \\ 6 & -6 & 3 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

1048. Orbit 1048 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 54 & 22 & -7 & -17 \\ -3 & -4 & -51 & 6 \\ 0 & -47 & 29 & 10 \\ -15 & -1 & 7 & 29 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -24 & -10 & 3 & 7 \\ 1 & 2 & 23 & -2 \\ 0 & 21 & -13 & -4 \\ 7 & 1 & -3 & -13 \end{pmatrix}$$

and $rank(A) = 4$.

1049. Orbit 1049 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 7 & -25 & 4 & -6 \\ 26 & 7 & 25 & 6 \\ 0 & 0 & 0 & -8 \\ 3 & 10 & 7 & 0 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -3 & 11 & -2 & 2 \\ -12 & -3 & -11 & -2 \\ 0 & 0 & 0 & 4 \\ -1 & -4 & -3 & 0 \end{pmatrix}$$

and $rank(A) = 4$.

1050. Orbit 1050 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{44} \begin{pmatrix} -43 & 70 & -1 & 28 \\ -18 & 44 & 33 & -11 \\ -19 & 1 & -87 & -3 \\ 26 & -9 & -33 & 18 \end{pmatrix} + \frac{\sqrt{5}}{44} \begin{pmatrix} 19 & -34 & 3 & -18 \\ 10 & -22 & -11 & 11 \\ 13 & -3 & 41 & 9 \\ -12 & 5 & 11 & -10 \end{pmatrix}$$

and $rank(A) = 4$.

1051. Orbit 1051 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -8 & 10 & 19 & 1 \\ 4 & 14 & -7 & 3 \\ 3 & 7 & 22 & -4 \\ -15 & -11 & 4 & -14 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 4 & -4 & -9 & -1 \\ -2 & -6 & 3 & -1 \\ -1 & -3 & -10 & 2 \\ 7 & 5 & -2 & 6 \end{pmatrix}$$

and $rank(A) = 4$.

1052. Orbit 1052 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 2 & 4 & 10 & 6 \\ -7 & 12 & 4 & 7 \\ -3 & 0 & -1 & 2 \\ 8 & 4 & 7 & -3 \end{pmatrix} + \frac{\sqrt{5}}{20}\begin{pmatrix} -4 & -10 & -24 & -16 \\ 15 & -26 & -8 & -13 \\ 9 & -2 & 1 & -2 \\ -16 & -10 & -17 & 7 \end{pmatrix}
$$

and $rank(A) = 4$.

1053. Orbit 1053 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8}\begin{pmatrix} -14 & 3 & -1 & -16 \\ -9 & 17 & -11 & -5 \\ 13 & -3 & 26 & -2 \\ 4 & -25 & -28 & 7 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} 6 & -1 & 1 & 6 \\ 3 & -7 & 5 & 3 \\ -5 & 1 & -12 & 2 \\ -2 & 11 & 12 & -3 \end{pmatrix}
$$

and $rank(A) = 4$.

1054. Orbit 1054 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{4}\begin{pmatrix} 22 & 25 & -15 & 48 \\ 37 & -44 & -11 & -26 \\ -26 & -54 & 4 & 46 \\ 11 & -7 & 44 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4}\begin{pmatrix} -10 & -11 & 7 & -22 \\ -17 & 20 & 5 & 12 \\ 12 & 24 & -2 & -20 \\ -5 & 3 & -20 & -8 \end{pmatrix}
$$

and $rank(A) = 4$.

1055. Orbit 1055 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$
A = \frac{1}{8}\begin{pmatrix} 15 & -8 & 3 & 6 \\ -13 & -1 & -7 & 5 \\ -1 & 4 & 8 & 1 \\ -7 & -11 & 4 & 14 \end{pmatrix} + \frac{\sqrt{5}}{8}\begin{pmatrix} -7 & 4 & -1 & -4 \\ 5 & 1 & 3 & -1 \\ 1 & -2 & -4 & 1 \\ 3 & 5 & -2 & -6 \end{pmatrix}
$$

and $rank(A) = 4$.

1056. Orbit 1056 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 12 & 4 & -6 & 8 \\ -7 & -7 & 1 & 13 \\ -11 & 9 & 3 & 5 \\ 0 & 2 & 10 & 8 \end{pmatrix} + \frac{\sqrt{5}}{20} \begin{pmatrix} -28 & -8 & 14 & -20 \\ 13 & 17 & -3 & -27 \\ 27 & -21 & -7 & -9 \\ -2 & -4 & -24 & -18 \end{pmatrix}$$

and $rank(A) = 4$.

1057. Orbit 1057 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 4 & 14 & -15 & 19 \\ -10 & -15 & 11 & 14 \\ -26 & 4 & 4 & 10 \\ 4 & 11 & 8 & 7 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -2 & -6 & 7 & -9 \\ 4 & 7 & -5 & -6 \\ 12 & -2 & -2 & -4 \\ -2 & -5 & -4 & -3 \end{pmatrix}$$

and $rank(A) = 4$.

1058. Orbit 1058 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{12} \begin{pmatrix} -8 & -14 & -8 & -6 \\ -7 & 3 & 30 & 12 \\ 2 & -7 & 3 & 4 \\ 17 & 12 & -25 & 16 \end{pmatrix} + \frac{\sqrt{5}}{12} \begin{pmatrix} 4 & 6 & 4 & 2 \\ 3 & -1 & -12 & -4 \\ 0 & 3 & -1 & 0 \\ -7 & -6 & 9 & -8 \end{pmatrix}$$

and $rank(A) = 4$.

1059. Orbit 1059 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} 11 & 33 & 25 & 19 \\ -33 & 69 & 3 & -19 \\ -19 & -25 & -33 & -5 \\ 11 & -11 & -3 & 33 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} -5 & -15 & -11 & -9 \\ 15 & -31 & -1 & 9 \\ 9 & 11 & 15 & 3 \\ -5 & 5 & 1 & -15 \end{pmatrix}$$

and $rank(A) = 4$.

1060. Orbit 1060 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 25 & 8 & -24 & -27 \\ 4 & -44 & 21 & 9 \\ 49 & 16 & 19 & 38 \\ 6 & 8 & -28 & 36 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -11 & -4 & 10 & 11 \\ -2 & 20 & -9 & -3 \\ -21 & -8 & -9 & -16 \\ -2 & -4 & 12 & -16 \end{pmatrix}$$

and $rank(A) = 4$.

1061. Orbit 1061 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 14 & 26 & 5 & 9 \\ -14 & 14 & -8 & 20 \\ -16 & 9 & -10 & 9 \\ 6 & -3 & 1 & -18 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -6 & -12 & -3 & -5 \\ 6 & -6 & 4 & -8 \\ 8 & -5 & 4 & -3 \\ -2 & 1 & -1 & 8 \end{pmatrix}$$

and $rank(A) = 4$.

1062. Orbit 1062 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{8} \begin{pmatrix} 19 & 3 & -11 & 5 \\ -9 & -12 & -7 & 20 \\ -27 & 15 & 0 & 2 \\ 5 & 14 & 12 & 15 \end{pmatrix} + \frac{\sqrt{5}}{8} \begin{pmatrix} -9 & -1 & 5 & -3 \\ 3 & 6 & 3 & -8 \\ 13 & -7 & 0 & 0 \\ -3 & -6 & -6 & -7 \end{pmatrix}$$

and $rank(A) = 4$.

1063. Orbit 1063 has incidence 16 stabilizer of size 1. One representative inequality is $Tr(XA) \leq 1$ with

$$A = \frac{1}{4} \begin{pmatrix} -14 & 14 & -22 & 8 \\ 19 & -33 & -25 & -33 \\ -37 & -43 & -7 & 21 \\ 26 & 18 & -10 & 18 \end{pmatrix} + \frac{\sqrt{5}}{4} \begin{pmatrix} 6 & -6 & 10 & -4 \\ -9 & 15 & 11 & 15 \\ 17 & 19 & 3 & -9 \\ -12 & -8 & 4 & -8 \end{pmatrix}$$

and $rank(A) = 4$.