

1.

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{7}{4} & 1 & 0 & 0 \\ -\frac{3}{4} & \frac{5}{29} & 1 & 0 \\ \frac{3}{2} & -\frac{62}{29} & -\frac{1156}{169} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & 7 & -9 & 8 \\ 0 & \frac{29}{4} & -\frac{83}{4} & 13 \\ 0 & 0 & \frac{169}{29} & -\frac{123}{29} \\ 0 & 0 & 0 & -\frac{1389}{169} \end{bmatrix}$$

3.

$$\begin{pmatrix} -8 & 3 & -9 \\ -18 & -13 & 9 \\ 12 & -9 & 14 \end{pmatrix}$$

4.

$$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 6 & 5 & 1 & 4 & 2 & 3 \end{pmatrix}; \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 1 & 5 & 6 & 3 & 2 & 4 \end{pmatrix}$$

5.

$$\sigma = (1, 7)(2, 9, 5, 6, 4)(3, 8), \text{ord} = 10, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 6 & 8 & 5 & 2 & 9 & 1 & 3 & 4 \end{pmatrix} = (1, 7)(2, 6, 9, 4, 5)(3, 8)$$

6. Id; (3, 4); (2, 3) (4, 6); (2, 3, 6, 4);

(2, 4, 6, 3); (2, 4) (3, 6); (2, 6); (2, 6) (3, 4); (1, 5, 7);

(1, 5, 7) (3, 4); (1, 5, 7) (2, 3) (4, 6); (1, 5, 7) (2, 3, 6, 4); (1, 5, 7) (2, 4, 6, 3); (1, 5, 7) (2, 4) (3, 6);

(1, 5, 7) (2, 6); (1, 5, 7) (2, 6) (3, 4); (1, 7, 5); (1, 7, 5) (3, 4); (1, 7, 5) (2, 3) (4, 6);

(1, 7, 5) (2, 3, 6, 4); (1, 7, 5) (2, 4, 6, 3); (1, 7, 5) (2, 4) (3, 6); (1, 7, 5) (2, 6); (1, 7, 5) (2, 6) (3, 4);

$$7. \frac{7 \cdot 28^n}{6} - \frac{4^n}{6}$$

$$8. 3 + -1 * x + -2 * x^2 + -2 * x^3 + 3 * x^4$$

9. При $\lambda = -9$

10. Определитель: $215\lambda - 90$, при $\lambda = [18/43]$ ранг равен 3, иначе 4