

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{4} & 1 & 0 & 0 \\ -\frac{5}{4} & \frac{17}{7} & 1 & 0 \\ -\frac{5}{4} & -\frac{9}{7} & -\frac{6}{65} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & -2 & -5 & -7 \\ 0 & -\frac{7}{2} & \frac{11}{4} & -\frac{51}{4} \\ 0 & 0 & -\frac{195}{14} & \frac{409}{14} \\ 0 & 0 & 0 & -\frac{1524}{65} \end{bmatrix}$$

3.

$$\begin{pmatrix} -18 & -6 & 14 \\ -13 & -18 & -9 \\ -7 & 15 & -12 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 6, 5, 2)(3, 4, 7, 8), \text{ord} = 20, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 5 & 6 & 4 & 7 & 9 & 1 & 8 & 3 & 2 \end{pmatrix} = (1, 5, 9, 2, 6)(3, 4, 7, 8)$$

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

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

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

$$7. \frac{7(-56)^n}{11} + \frac{4 \cdot 32^n}{11}$$

$$8. -4 + -1 * x + 0 * x^2 + 4 * x^3 + -1 * x^4$$

9. При $\lambda = 5$

10. Определитель: $70\lambda - 500$, при $\lambda = [50/7]$ ранг равен 3, иначе 4