

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 7 & 1 & 0 & 0 \\ -5 & -\frac{15}{34} & 1 & 0 \\ -6 & -\frac{27}{34} & \frac{25}{539} & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & 5 & -4 & 7 \\ 0 & -34 & 23 & -43 \\ 0 & 0 & -\frac{539}{34} & \frac{817}{34} \\ 0 & 0 & 0 & -\frac{1758}{539} \end{bmatrix}$$

3.

$$\begin{pmatrix} 16 & -10 & 14 \\ 13 & -18 & -18 \\ -9 & -6 & 6 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 4, 7, 9, 6, 3)(2, 5), \text{ord} = 14, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 5 & 7 & 3 & 2 & 4 & 1 & 6 & 8 \end{pmatrix} = (1, 9, 8, 6, 4, 3, 7)(2, 5)$$

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

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

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

$$7. \frac{14(-28)^n}{15} + \frac{2^n}{15}$$

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

9. При $\lambda = -1$

10. Определитель: $26\lambda - 390$, при $\lambda = [15]$ ранг равен 3, иначе 4