

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ -2 & \frac{1}{4} & 1 & 0 \\ \frac{3}{2} & \frac{11}{16} & \frac{133}{44} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & -1 & -3 & -5 \\ 0 & 8 & -7 & -14 \\ 0 & 0 & \frac{11}{4} & -\frac{33}{2} \\ 0 & 0 & 0 & 66 \end{bmatrix}$$

3.

$$\begin{pmatrix} 13 & 2 & 10 \\ 11 & -9 & -8 \\ 11 & 16 & -17 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{28(-56)^n}{29} + \frac{2^n}{29}$$

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

9. При $\lambda = -2$

10. Определитель: $5\lambda + 8$, при $\lambda = [-8/5]$ ранг равен 3, иначе 4