

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 10 & 1 & 0 & 0 \\ 10 & -\frac{3}{2} & 1 & 0 \\ -6 & \frac{7}{6} & -\frac{299}{425} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & 0 & -8 & -1 \\ 0 & -6 & 87 & 16 \\ 0 & 0 & \frac{425}{2} & 34 \\ 0 & 0 & 0 & \frac{169}{75} \end{bmatrix}$$

3.

$$\begin{pmatrix} 9 & 10 & -1 \\ -8 & -19 & -8 \\ 10 & 19 & 1 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 7, 9, 2)(3, 8, 5, 6, 4), \text{ord} = 20, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 1 & 4 & 6 & 8 & 5 & 9 & 3 & 2 \end{pmatrix} = (1, 7, 9, 2)(3, 4, 6, 5, 8)$$

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

$$7. \frac{(-16)^n}{4} + \frac{3 \cdot 48^n}{4}$$

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

9. При $\lambda = -4$

10. Определитель: $-36\lambda - 263$, при $\lambda = [-263/36]$ ранг равен 3, иначе 4