

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{9}{8} & 1 & 0 & 0 \\ -\frac{3}{8} & \frac{3}{19} & 1 & 0 \\ \frac{7}{8} & -\frac{3}{19} & -\frac{493}{151} & 1 \end{bmatrix}, U = \begin{bmatrix} -8 & 4 & -10 & 9 \\ 0 & \frac{19}{2} & -\frac{45}{4} & \frac{105}{8} \\ 0 & 0 & -\frac{151}{38} & -\frac{281}{76} \\ 0 & 0 & 0 & -\frac{1642}{151} \end{bmatrix}$$

3.

$$\begin{pmatrix} 11 & 11 & -14 \\ -10 & -18 & -15 \\ -3 & 14 & -12 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 3, 7)(2, 4, 8, 5, 6), \text{ord} = 20, \sigma^{-743} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 8 & 7 & 5 & 2 & 4 & 1 & 6 & 3 \end{pmatrix} = (1, 9, 3, 7)(2, 8, 6, 4, 5)$$

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

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

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

$$7. \frac{8(-24)^n}{17} + \frac{9 \cdot 27^n}{17}$$

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

9. При $\lambda = -4$

10. Определитель: $48\lambda + 158$, при $\lambda = [-79/24]$ ранг равен 3, иначе 4