

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 1 & 0 & 0 \\ \frac{7}{2} & \frac{1}{4} & 1 & 0 \\ -\frac{9}{2} & \frac{9}{8} & \frac{29}{16} & 1 \end{bmatrix}, U = \begin{bmatrix} -2 & -2 & 1 & -9 \\ 0 & -8 & 2 & -34 \\ 0 & 0 & 4 & 41 \\ 0 & 0 & 0 & -\frac{1161}{16} \end{bmatrix}$$

3.

$$\begin{pmatrix} 3 & -5 & -2 \\ 18 & -15 & -10 \\ -11 & 5 & -17 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 3, 4, 6)(5, 7, 9, 8), \text{ord} = 20, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 3 & 4 & 6 & 7 & 1 & 9 & 5 & 8 \end{pmatrix} = (1, 2, 3, 4, 6)(5, 7, 9, 8)$$

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

$$7. -\frac{(-12)^n}{2} + \frac{3(-36)^n}{2}$$

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

9. При $\lambda = 5$

10. Определитель: $17\lambda + 227$, при $\lambda = [-227/17]$ ранг равен 3, иначе 4