

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{9} & 1 & 0 & 0 \\ -\frac{10}{9} & 56 & 1 & 0 \\ \frac{8}{9} & 2 & \frac{36}{623} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & 2 & 6 & 2 \\ 0 & \frac{1}{9} & \frac{34}{3} & -\frac{62}{9} \\ 0 & 0 & -623 & 396 \\ 0 & 0 & 0 & -\frac{6157}{623} \end{bmatrix}$$

3.

$$\begin{pmatrix} -7 & 6 & 9 \\ 12 & -8 & -12 \\ 3 & -12 & -4 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{7(-56)^n}{6} - \frac{(-8)^n}{6}$$

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

9. При $\lambda = 6$

10. Определитель: $-8\lambda - 204$, при $\lambda = [-51/2]$ ранг равен 3, иначе 4