

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{8}{3} & 1 & 0 & 0 \\ \frac{1}{3} & 13 & 1 & 0 \\ 0 & 0 & -\frac{4}{325} & 1 \end{bmatrix}, U = \begin{bmatrix} -3 & 2 & -7 & -4 \\ 0 & \frac{1}{3} & -\frac{74}{3} & -\frac{38}{3} \\ 0 & 0 & 325 & 171 \\ 0 & 0 & 0 & \frac{3609}{325} \end{bmatrix}$$

3.

$$\begin{pmatrix} 8 & 5 & 9 \\ 12 & -17 & 14 \\ 0 & 14 & -18 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 3, 7, 9, 6, 2)(4, 5), \text{ord} = 14, \sigma^{-743} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 6 & 8 & 5 & 4 & 9 & 3 & 1 & 7 \end{pmatrix} = (1, 2, 6, 9, 7, 3, 8)(4, 5)$$

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

$$7. \frac{3(-21)^n}{8} + \frac{5 \cdot 35^n}{8}$$

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

9. При $\lambda = 8$

10. Определитель: $20\lambda + 168$, при $\lambda = [-42/5]$ ранг равен 3, иначе 4