

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ \frac{9}{7} & \frac{144}{7} & 1 & 0 \\ -1 & -17 & -\frac{42}{47} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & -9 & 5 & 7 \\ 0 & 1 & -4 & -1 \\ 0 & 0 & \frac{517}{7} & \frac{102}{7} \\ 0 & 0 & 0 & \frac{236}{47} \end{bmatrix}$$

3.

$$\begin{pmatrix} -18 & -8 & 4 \\ -14 & -14 & -3 \\ -17 & -17 & 5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2)(3, 4, 7, 5, 6)(8, 9), \text{ord} = 10, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 1 & 5 & 6 & 4 & 7 & 3 & 9 & 8 \end{pmatrix} = (1, 2)(3, 5, 4, 6, 7)(8, 9)$$

6. Id; (4, 6); (3, 4) (5, 6); (3, 4, 5, 6);

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

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

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

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

7. брак

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

9. При  $\lambda = 9$

10. Определитель:  $4\lambda + 424$ , при  $\lambda = [-106]$  ранг равен 3, иначе 4