

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{7}{4} & 1 & 0 & 0 \\ \frac{3}{2} & \frac{2}{3} & 1 & 0 \\ -\frac{7}{4} & \frac{11}{3} & \frac{31}{46} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & -5 & -5 & 1 \\ 0 & -\frac{15}{4} & -\frac{23}{4} & -\frac{9}{4} \\ 0 & 0 & \frac{46}{3} & 7 \\ 0 & 0 & 0 & \frac{13}{46} \end{bmatrix}$$

3.

$$\begin{pmatrix} 16 & -17 & 8 \\ -1 & -7 & 2 \\ 3 & 8 & -18 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 9, 4, 8)(3, 7, 6, 5), \text{ord} = 20, \sigma^{-821} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 1 & 5 & 9 & 6 & 7 & 3 & 4 & 2 \end{pmatrix} = (1, 8, 4, 9, 2)(3, 5, 6, 7)$$

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

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

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

7. брак

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

9. При  $\lambda = -6$

10. Определитель:  $63\lambda + 501$ , при  $\lambda = [-167/21]$  ранг равен 3, иначе 4