

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 1 & 0 & 0 \\ \frac{7}{2} & -\frac{9}{4} & 1 & 0 \\ -\frac{5}{2} & \frac{4}{5} & -\frac{39}{37} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & -8 & -1 & -5 \\ 0 & -30 & 2 & -25 \\ 0 & 0 & -\frac{37}{10} & -4 \\ 0 & 0 & 0 & \frac{687}{74} \end{bmatrix}$$

3.

$$\begin{pmatrix} 5 & 15 & 18 \\ -7 & -11 & -1 \\ -5 & -17 & 17 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 2, 9)(3, 8)(4, 5, 7), \text{ord} = 12, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 9 & 8 & 7 & 4 & 2 & 5 & 3 & 1 \end{pmatrix} = (1, 6, 2, 9)(3, 8)(4, 7, 5)$$

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

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

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

$$7. \frac{3(-18)^n}{4} + \frac{6^n}{4}$$

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

9. При $\lambda = 6$

10. Определитель: $12\lambda + 168$, при $\lambda = [-14]$ ранг равен 3, иначе 4