

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 3 & 1 & 0 & 0 \\ 4 & \frac{3}{5} & 1 & 0 \\ 5 & -\frac{1}{5} & -7 & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & 0 & 0 & 8 \\ 0 & 5 & -4 & -21 \\ 0 & 0 & -\frac{3}{5} & -\frac{127}{5} \\ 0 & 0 & 0 & -217 \end{bmatrix}$$

3.

$$\begin{pmatrix} 14 & 8 & -14 \\ 19 & 13 & -9 \\ 13 & -2 & -5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 2, 6, 8, 9, 4)(3, 7), \text{ord} = 14, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 4 & 7 & 6 & 9 & 1 & 3 & 5 & 2 \end{pmatrix} = (1, 8, 5, 9, 2, 4, 6)(3, 7)$$

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

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

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

$$7. \frac{25(-100)^n}{16} - \frac{9(-36)^n}{16}$$

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

9. При  $\lambda = 7$

10. Определитель:  $14\lambda - 91$ , при  $\lambda = [13/2]$  ранг равен 3, иначе 4