

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{8}{9} & 1 & 0 & 0 \\ -\frac{2}{3} & \frac{3}{11} & 1 & 0 \\ -1 & -\frac{135}{22} & \frac{791}{24} & 1 \end{bmatrix}, U = \begin{bmatrix} -9 & -5 & -5 & 9 \\ 0 & \frac{22}{9} & -\frac{41}{9} & 0 \\ 0 & 0 & -\frac{12}{11} & 15 \\ 0 & 0 & 0 & -\frac{3811}{8} \end{bmatrix}$$

3.

$$\begin{pmatrix} 6 & 10 & -16 \\ 15 & 4 & -18 \\ -12 & 19 & -3 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 4, 2, 9, 3, 8)(5, 7), \text{ord} = 14, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 9 & 8 & 2 & 7 & 4 & 5 & 1 & 3 \end{pmatrix} = (1, 6, 4, 2, 9, 3, 8)(5, 7)$$

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

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

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

$$7. \frac{9(-9)^n}{17} + \frac{8 \cdot 8^n}{17}$$

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

9. При  $\lambda = 9$

10. Определитель:  $500 - 16\lambda$ , при  $\lambda = [125/4]$  ранг равен 3, иначе 4