

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{7}{2} & 1 & 0 & 0 \\ -\frac{1}{2} & \frac{1}{7} & 1 & 0 \\ -2 & -\frac{8}{49} & -\frac{775}{182} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & 5 & -5 & -6 \\ 0 & -\frac{49}{2} & \frac{39}{2} & 30 \\ 0 & 0 & \frac{26}{7} & -\frac{72}{7} \\ 0 & 0 & 0 & -\frac{4177}{91} \end{bmatrix}$$

3.

$$\begin{pmatrix} 18 & 5 & -12 \\ 5 & 8 & 4 \\ 15 & 2 & 12 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9)(2, 3, 7, 8, 5)(4, 6), \text{ord} = 10, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 3 & 7 & 6 & 2 & 4 & 8 & 5 & 1 \end{pmatrix} = (1, 9)(2, 3, 7, 8, 5)(4, 6)$$

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

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

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

$$7. \frac{12(-24)^n}{13} + \frac{2^n}{13}$$

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

9. При  $\lambda = 2$

10. Определитель:  $823 - 177\lambda$ , при  $\lambda = [823/177]$  ранг равен 3, иначе 4