

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{6} & 1 & 0 & 0 \\ \frac{3}{2} & -\frac{7}{3} & 1 & 0 \\ -\frac{2}{3} & \frac{22}{3} & -\frac{53}{28} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & -3 & 6 & 7 \\ 0 & -\frac{3}{2} & -6 & \frac{19}{6} \\ 0 & 0 & -28 & \frac{26}{9} \\ 0 & 0 & 0 & -\frac{2783}{126} \end{bmatrix}$$

3.

$$\begin{pmatrix} -14 & 8 & -20 \\ 6 & -9 & -17 \\ 17 & -6 & -5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 9, 4, 8, 6, 5)(3, 7), \text{ord} = 14, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 8 & 7 & 5 & 9 & 2 & 3 & 1 & 6 \end{pmatrix} = (1, 4, 5, 9, 6, 2, 8)(3, 7)$$

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

$$7. \frac{3(-24)^n}{2} - \frac{(-8)^n}{2}$$

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

9. При $\lambda = 7$

10. Определитель: $-92\lambda - 36$, при $\lambda = [-9/23]$ ранг равен 3, иначе 4