

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{7} & 1 & 0 & 0 \\ -\frac{1}{7} & -\frac{41}{54} & 1 & 0 \\ \frac{2}{7} & -\frac{23}{54} & -\frac{28}{125} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & 1 & 3 & -10 \\ 0 & \frac{54}{7} & \frac{78}{7} & -\frac{99}{7} \\ 0 & 0 & \frac{125}{9} & -\frac{133}{6} \\ 0 & 0 & 0 & -\frac{1533}{250} \end{bmatrix}$$

3.

$$\begin{pmatrix} 8 & 17 & 0 \\ 10 & -17 & 2 \\ 19 & 13 & -12 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{15(-90)^n}{17} + \frac{2 \cdot 12^n}{17}$$

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

9. При $\lambda = 8$

10. Определитель: $85\lambda + 1325$, при $\lambda = [-265/17]$ ранг равен 3, иначе 4