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.

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

5.

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

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