

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{4}{9} & 1 & 0 & 0 \\ \frac{2}{9} & 8 & 1 & 0 \\ -1 & -\frac{33}{4} & -\frac{607}{656} & 1 \end{bmatrix}, U = \begin{bmatrix} -9 & 3 & 7 & -4 \\ 0 & -\frac{4}{3} & -\frac{118}{9} & -\frac{20}{9} \\ 0 & 0 & \frac{328}{3} & \frac{38}{3} \\ 0 & 0 & 0 & -\frac{857}{328} \end{bmatrix}$$

3.

$$\begin{pmatrix} -11 & -10 & 11 \\ -9 & 8 & -10 \\ -3 & -12 & -9 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 7)(2, 6, 5, 4)(3, 9, 8), \text{ord} = 12, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 6 & 8 & 2 & 4 & 5 & 1 & 9 & 3 \end{pmatrix} = (1, 7)(2, 6, 5, 4)(3, 8, 9)$$

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

$$7. -\frac{18(-36)^n}{17} + \frac{35(-70)^n}{17}$$

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

9. При  $\lambda = 9$

10. Определитель:  $47 - 100\lambda$ , при  $\lambda = [47/100]$  ранг равен 3, иначе 4