

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ \frac{7}{5} & \frac{34}{5} & 1 & 0 \\ -\frac{8}{5} & -\frac{26}{5} & -\frac{17}{28} & 1 \end{bmatrix}, U = \begin{bmatrix} 5 & -4 & -5 & 3 \\ 0 & 2 & 4 & -10 \\ 0 & 0 & -\frac{56}{5} & \frac{289}{5} \\ 0 & 0 & 0 & -\frac{311}{28} \end{bmatrix}$$

3.

$$\begin{pmatrix} -7 & 0 & 13 \\ 16 & -20 & 14 \\ 17 & -9 & 11 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 7, 2, 8, 3, 6)(4, 5), \text{ord} = 14, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 9 & 2 & 5 & 4 & 8 & 1 & 7 & 6 \end{pmatrix} = (1, 3, 2, 9, 6, 8, 7)(4, 5)$$

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

$$7. -\frac{5 \cdot 20^n}{2} + \frac{7 \cdot 28^n}{2}$$

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

9. При  $\lambda = -8$

10. Определитель:  $249 - 33\lambda$ , при  $\lambda = [83/11]$  ранг равен 3, иначе 4