

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{10}{7} & 1 & 0 & 0 \\ -1 & -\frac{119}{101} & 1 & 0 \\ -\frac{1}{7} & -\frac{8}{101} & -\frac{226}{451} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & -8 & -9 & -6 \\ 0 & \frac{101}{7} & \frac{118}{7} & \frac{116}{7} \\ 0 & 0 & \frac{1804}{101} & \frac{1568}{101} \\ 0 & 0 & 0 & \frac{2361}{451} \end{bmatrix}$$

3.

$$\begin{pmatrix} 17 & 0 & 19 \\ 6 & -3 & 19 \\ 0 & -16 & 1 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 7, 4)(2, 8)(3, 5, 6), \text{ord} = 12, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 8 & 6 & 1 & 3 & 5 & 4 & 2 & 7 \end{pmatrix} = (1, 9, 7, 4)(2, 8)(3, 6, 5)$$

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

$$7. \frac{28(-56)^n}{53} + \frac{25 \cdot 50^n}{53}$$

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

9. При  $\lambda = -9$

10. Определитель:  $2\lambda + 214$ , при  $\lambda = [-107]$  ранг равен 3, иначе 4