

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{7}{6} & 1 & 0 & 0 \\ -1 & \frac{66}{19} & 1 & 0 \\ \frac{2}{3} & -\frac{50}{19} & \frac{125}{6} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & 5 & -8 & -5 \\ 0 & \frac{19}{6} & -\frac{2}{3} & \frac{71}{6} \\ 0 & 0 & \frac{6}{19} & -\frac{990}{19} \\ 0 & 0 & 0 & 1116 \end{bmatrix}$$

3.

$$\begin{pmatrix} 19 & -5 & 1 \\ 15 & -6 & 1 \\ -4 & 2 & 3 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 2, 6, 4)(3, 7, 5, 8), \text{ord} = 20, \sigma^{-743} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 7 & 9 & 8 & 1 & 5 & 3 & 6 \end{pmatrix} = (1, 2, 4, 9, 6)(3, 7, 5, 8)$$

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

$$7. \frac{5(-10)^n}{2} - \frac{3(-6)^n}{2}$$

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

9. При  $\lambda = 0$

10. Определитель:  $71\lambda + 430$ , при  $\lambda = [-430/71]$  ранг равен 3, иначе 4