

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{8} & 1 & 0 & 0 \\ -1 & -\frac{1}{10} & 1 & 0 \\ 1 & \frac{3}{5} & \frac{214}{911} & 1 \end{bmatrix}, U = \begin{bmatrix} -8 & 8 & -5 & -7 \\ 0 & -10 & -\frac{31}{8} & \frac{19}{8} \\ 0 & 0 & -\frac{911}{80} & \frac{19}{80} \\ 0 & 0 & 0 & \frac{4117}{911} \end{bmatrix}$$

3.

$$\begin{pmatrix} 6 & -8 & 10 \\ -11 & -5 & 17 \\ -12 & -1 & 4 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 2, 9, 4)(3, 6, 7, 8), \text{ord} = 20, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 5 & 6 & 9 & 1 & 7 & 8 & 3 & 2 \end{pmatrix} = (1, 4, 9, 2, 5)(3, 6, 7, 8)$$

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

$$7. -\frac{7(-14)^n}{2} + \frac{9(-18)^n}{2}$$

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

9. При $\lambda = 2$

10. Определитель: $22\lambda - 88$, при $\lambda = [4]$ ранг равен 3, иначе 4