

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 4 & 1 & 0 & 0 \\ -3 & -3 & 1 & 0 \\ 7 & -8 & \frac{168}{47} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & -2 & 3 & -5 \\ 0 & -1 & -19 & 24 \\ 0 & 0 & -47 & 61 \\ 0 & 0 & 0 & \frac{844}{47} \end{bmatrix}$$

3.

$$\begin{pmatrix} -4 & 15 & 6 \\ -7 & 4 & -11 \\ -12 & -6 & -11 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 8, 2)(3, 7)(5, 6, 9), ord = 12, \sigma^{-733} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 8 & 7 & 1 & 9 & 5 & 3 & 4 & 6 \end{pmatrix} = (1, 2, 8, 4)(3, 7)(5, 9, 6)$$

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

$$7. \frac{24(-24)^n}{29} + \frac{5 \cdot 5^n}{29}$$

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

9. При $\lambda = -7$

10. Определитель: $94 - 40\lambda$, при $\lambda = [47/20]$ ранг равен 3, иначе 4