

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{2}{9} & 1 & 0 & 0 \\ -\frac{2}{3} & -\frac{51}{2} & 1 & 0 \\ \frac{1}{9} & 41 & -\frac{327}{208} & 1 \end{bmatrix}, U = \begin{bmatrix} -9 & -10 & -1 & -2 \\ 0 & \frac{2}{9} & -\frac{70}{9} & \frac{49}{9} \\ 0 & 0 & -208 & \frac{267}{2} \\ 0 & 0 & 0 & -\frac{4627}{416} \end{bmatrix}$$

3.

$$\begin{pmatrix} 18 & 13 & 9 \\ -2 & 1 & -6 \\ 19 & -6 & 18 \end{pmatrix}$$

4.

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

5.

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

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

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

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

$$7. \frac{9(-54)^n}{13} + \frac{4 \cdot 24^n}{13}$$

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

9. При $\lambda = -4$

10. Определитель: $93\lambda + 473$, при $\lambda = [-473/93]$ ранг равен 3, иначе 4