

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ \frac{2}{7} & \frac{23}{14} & 1 & 0 \\ -\frac{1}{7} & \frac{19}{28} & \frac{24}{113} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & 2 & 0 & 9 \\ 0 & -4 & 8 & 14 \\ 0 & 0 & -\frac{113}{7} & -\frac{151}{7} \\ 0 & 0 & 0 & -\frac{1725}{226} \end{bmatrix}$$

3.

$$\begin{pmatrix} -19 & -16 & -5 \\ 6 & -1 & 17 \\ -5 & 4 & 6 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 4)(3, 8, 5, 7, 6, 9), \text{ord} = 6, \sigma^{-797} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 8 & 1 & 7 & 9 & 6 & 5 & 3 \end{pmatrix} = (1, 2, 4)(3, 8, 5, 7, 6, 9)$$

6. Id; (2, 3) (6, 7); (2, 6, 3, 7); (2, 7, 3, 6);

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

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

$$7. \frac{7(-21)^n}{5} - \frac{2(-6)^n}{5}$$

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

9. При $\lambda = 2$

10. Определитель: $-40\lambda - 120$, при $\lambda = [-3]$ ранг равен 3, иначе 4