

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{7}{5} & 1 & 0 & 0 \\ -\frac{2}{5} & -\frac{18}{13} & 1 & 0 \\ -\frac{1}{5} & -\frac{14}{13} & \frac{179}{141} & 1 \end{bmatrix}, U = \begin{bmatrix} -5 & -1 & 9 & -6 \\ 0 & -\frac{13}{5} & -\frac{113}{5} & \frac{37}{5} \\ 0 & 0 & -\frac{282}{13} & -\frac{15}{13} \\ 0 & 0 & 0 & \frac{528}{47} \end{bmatrix}$$

3.

$$\begin{pmatrix} -15 & 7 & -18 \\ 11 & -14 & 16 \\ 12 & 18 & 17 \end{pmatrix}$$

4.

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

5.

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

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

7. брак

$$8. 0 + 4 * x + -4 * x^2 + -1 * x^3 + -1 * x^4$$

9. При $\lambda = -3$

10. Определитель: $369\lambda - 19$, при $\lambda = [19/369]$ ранг равен 3, иначе 4