

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ -\frac{1}{5} & \frac{6}{5} & 1 & 0 \\ \frac{3}{10} & \frac{1}{30} & -\frac{49}{86} & 1 \end{bmatrix}, U = \begin{bmatrix} -10 & 4 & 7 & -5 \\ 0 & -6 & -9 & 0 \\ 0 & 0 & \frac{86}{5} & 4 \\ 0 & 0 & 0 & \frac{239}{86} \end{bmatrix}$$

3.

$$\begin{pmatrix} -6 & -14 & -11 \\ 3 & -4 & 10 \\ 13 & -17 & 7 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 9, 6, 7)(2, 8, 4, 3), \text{ord} = 20, \sigma^{-733} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 3 & 4 & 8 & 6 & 1 & 5 & 2 & 7 \end{pmatrix} = (1, 9, 7, 5, 6)(2, 3, 4, 8)$$

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

7. брак

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

9. При $\lambda = 6$

10. Определитель: $690 - 198\lambda$, при $\lambda = [115/33]$ ранг равен 3, иначе 4