

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -2 & 1 & 0 & 0 \\ \frac{5}{4} & -\frac{7}{60} & 1 & 0 \\ -\frac{5}{4} & \frac{71}{60} & -\frac{17}{4} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & 7 & -4 & 8 \\ 0 & 15 & -8 & 12 \\ 0 & 0 & -\frac{44}{15} & -\frac{58}{5} \\ 0 & 0 & 0 & -\frac{107}{2} \end{bmatrix}$$

3.

$$\begin{pmatrix} -20 & -20 & 18 \\ 6 & -4 & 18 \\ 11 & -2 & -6 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8)(2, 5)(3, 6, 7, 4, 9), \text{ord} = 10, \sigma^{-733} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 5 & 7 & 3 & 2 & 4 & 9 & 1 & 6 \end{pmatrix} = (1, 8)(2, 5)(3, 7, 9, 6, 4)$$

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

7. $-8(-24)^n + 9(-27)^n$

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

9. При $\lambda = -5$

10. Определитель: $40\lambda - 40$, при $\lambda = [1]$ ранг равен 3, иначе 4