

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{3} & 1 & 0 & 0 \\ -1 & \frac{9}{2} & 1 & 0 \\ -\frac{1}{3} & \frac{23}{8} & \frac{155}{196} & 1 \end{bmatrix}, U = \begin{bmatrix} -3 & 5 & 9 & -9 \\ 0 & \frac{8}{3} & -5 & -3 \\ 0 & 0 & \frac{49}{2} & \frac{11}{2} \\ 0 & 0 & 0 & \frac{1007}{98} \end{bmatrix}$$

3.

$$\begin{pmatrix} 12 & -11 & -3 \\ 13 & 14 & -8 \\ 14 & 17 & -2 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 3, 7)(2, 4)(5, 6, 8), \text{ord} = 12, \sigma^{-733} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 4 & 9 & 2 & 8 & 5 & 3 & 6 & 1 \end{pmatrix} = (1, 7, 3, 9)(2, 4)(5, 8, 6)$$

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

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

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

$$7. \frac{15(-60)^n}{17} + \frac{2 \cdot 8^n}{17}$$

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

9. При $\lambda = 0$

10. Определитель: $12\lambda + 564$, при $\lambda = [-47]$ ранг равен 3, иначе 4