

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{2}{3} & 1 & 0 & 0 \\ \frac{7}{6} & 41 & 1 & 0 \\ -\frac{1}{3} & 5 & \frac{112}{1007} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & 4 & -3 & 1 \\ 0 & -\frac{1}{3} & -12 & \frac{14}{3} \\ 0 & 0 & \frac{1007}{2} & -\frac{371}{2} \\ 0 & 0 & 0 & \frac{31}{19} \end{bmatrix}$$

3.

$$\begin{pmatrix} -17 & -8 & 10 \\ 2 & -17 & 0 \\ -9 & -17 & -3 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 5, 7, 8, 3)(2, 4, 6), \text{ord} = 6, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 6 & 8 & 2 & 9 & 4 & 5 & 7 & 1 \end{pmatrix} = (1, 3, 8, 7, 5, 9)(2, 6, 4)$$

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

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

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

$$7. \frac{3(-54)^n}{4} + \frac{18^n}{4}$$

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

9. При $\lambda = 4$

10. Определитель: -34λ , при $\lambda = [0]$ ранг равен 3, иначе 4