

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{3} & 1 & 0 & 0 \\ -\frac{1}{2} & \frac{12}{19} & 1 & 0 \\ \frac{4}{3} & \frac{14}{19} & \frac{27}{91} & 1 \end{bmatrix}, U = \begin{bmatrix} 6 & -4 & 4 & 9 \\ 0 & -\frac{19}{3} & \frac{1}{3} & 3 \\ 0 & 0 & \frac{91}{19} & \frac{289}{38} \\ 0 & 0 & 0 & -\frac{4635}{182} \end{bmatrix}$$

3.

$$\begin{pmatrix} 9 & -19 & 9 \\ -17 & 1 & 3 \\ 19 & -14 & -7 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 7)(2, 6, 8, 5, 3)(4, 9), \text{ord} = 10, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 3 & 5 & 9 & 8 & 2 & 1 & 6 & 4 \end{pmatrix} = (1, 7)(2, 3, 5, 8, 6)(4, 9)$$

6. Id; (3, 4, 6, 7); (3, 6) (4, 7); (3, 7, 6, 4);

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

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

$$7. \frac{5(-20)^n}{13} + \frac{8 \cdot 32^n}{13}$$

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

9. При $\lambda = 2$

10. Определитель: $30\lambda + 120$, при $\lambda = [-4]$ ранг равен 3, иначе 4