

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{1}{5} & 1 & 0 & 0 \\ -\frac{3}{5} & \frac{19}{32} & 1 & 0 \\ -\frac{9}{10} & \frac{13}{16} & \frac{122}{119} & 1 \end{bmatrix}, U = \begin{bmatrix} -10 & -8 & 3 & -3 \\ 0 & -\frac{32}{5} & \frac{2}{5} & -\frac{2}{5} \\ 0 & 0 & -\frac{119}{16} & -\frac{9}{16} \\ 0 & 0 & 0 & -\frac{928}{119} \end{bmatrix}$$

3.

$$\begin{pmatrix} 15 & 11 & 13 \\ 13 & 0 & -9 \\ -10 & 10 & 15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 7)(2, 4, 6, 8)(5, 9), ord = 12, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 4 & 1 & 6 & 9 & 8 & 3 & 2 & 5 \end{pmatrix} = (1, 7, 3)(2, 4, 6, 8)(5, 9)$$

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

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

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

$$7. -\frac{5(-20)^n}{2} + \frac{7(-28)^n}{2}$$

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

9. При $\lambda = 1$

10. Определитель: $-28\lambda - 39$, при $\lambda = [-39/28]$ ранг равен 3, иначе 4