

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{4}{5} & 1 & 0 & 0 \\ -\frac{4}{5} & \frac{2}{3} & 1 & 0 \\ -\frac{4}{5} & \frac{4}{3} & -\frac{13}{33} & 1 \end{bmatrix}, U = \begin{bmatrix} -10 & 5 & 7 & -9 \\ 0 & 3 & \frac{3}{5} & -\frac{41}{5} \\ 0 & 0 & \frac{66}{5} & \frac{4}{15} \\ 0 & 0 & 0 & \frac{578}{99} \end{bmatrix}$$

3.

$$\begin{pmatrix} 2 & 3 & -16 \\ -19 & -3 & -16 \\ -7 & 1 & 11 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 2, 7)(3, 6, 8, 4, 5), \text{ord} = 20, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 7 & 5 & 8 & 4 & 3 & 1 & 6 & 2 \end{pmatrix} = (1, 9, 2, 7)(3, 5, 4, 8, 6)$$

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

$$7. -\frac{5(-15)^n}{2} + \frac{7(-21)^n}{2}$$

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

9. При $\lambda = -9$

10. Определитель: $210\lambda + 24$, при $\lambda = [-4/35]$ ранг равен 3, иначе 4