

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{7} & 1 & 0 & 0 \\ -\frac{2}{7} & -\frac{17}{3} & 1 & 0 \\ \frac{3}{7} & -\frac{4}{9} & \frac{26}{165} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & -1 & 1 & -5 \\ 0 & \frac{9}{7} & -\frac{37}{7} & \frac{31}{7} \\ 0 & 0 & -\frac{110}{3} & \frac{47}{3} \\ 0 & 0 & 0 & -\frac{224}{165} \end{bmatrix}$$

3.

$$\begin{pmatrix} -8 & 0 & -16 \\ -9 & 9 & 13 \\ 12 & -8 & -1 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 4, 6, 5)(2, 3, 8, 7), \text{ord} = 20, \sigma^{-797} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 7 & 2 & 1 & 4 & 9 & 8 & 3 & 5 \end{pmatrix} = (1, 6, 9, 5, 4)(2, 7, 8, 3)$$

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

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

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

$$7. \frac{9(-36)^n}{19} + \frac{10 \cdot 40^n}{19}$$

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

9. При $\lambda = -9$

10. Определитель: $40 - 70\lambda$, при $\lambda = [4/7]$ ранг равен 3, иначе 4