

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{2}{7} & 1 & 0 & 0 \\ -\frac{3}{7} & -\frac{39}{58} & 1 & 0 \\ -\frac{2}{7} & \frac{51}{58} & -\frac{63}{55} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & -8 & 9 & -7 \\ 0 & -\frac{58}{7} & -\frac{38}{7} & 0 \\ 0 & 0 & -\frac{110}{29} & -7 \\ 0 & 0 & 0 & -\frac{221}{55} \end{bmatrix}$$

3.

$$\begin{pmatrix} 9 & 12 & 4 \\ 18 & 0 & -4 \\ 18 & -12 & -19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 3, 5)(2, 7, 4)(8, 9), \text{ord} = 12, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 4 & 5 & 7 & 1 & 3 & 2 & 9 & 8 \end{pmatrix} = (1, 6, 3, 5)(2, 4, 7)(8, 9)$$

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

$$7. \frac{9(-45)^n}{19} + \frac{10 \cdot 50^n}{19}$$

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

9. При $\lambda = 8$

10. Определитель: $208\lambda - 1180$, при $\lambda = [295/52]$ ранг равен 3, иначе 4