1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ -\frac{5}{3} & -\frac{7}{8} & 1 & 0 \\ 1 & \frac{1}{2} & -\frac{12}{61} & 1 \end{bmatrix}, U = \begin{bmatrix} 3 & 0 & 5 & -10 \\ 0 & -8 & 8 & -6 \\ 0 & 0 & \frac{61}{3} & -\frac{167}{12} \\ 0 & 0 & 0 & \frac{1053}{61} \end{bmatrix}$

3.

$$\begin{pmatrix} 14 & 2 & -10 \\ -5 & -7 & 5 \\ -5 & -13 & 5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,9)(2,8,4,6,3,7,5), ord = 14, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 7 & 4 & 2 & 3 & 8 & 6 & 5 & 1 \end{pmatrix} = (1,9)(2,7,6,8,5,3,4)$$

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

7. $\frac{(-50)^n}{3} + \frac{2 \cdot 100^n}{3}$

8. $1 + -4 * x + 0 * x^2 + -3 * x^3 + -4 * x^4$

9. При $\lambda = -7$

10. Определитель: $389 - 87\lambda$, при $\lambda = [389/87]$ ранг равен 3, иначе 4