1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{4}{3} & 1 & 0 & 0 \\ 0 & -\frac{12}{13} & 1 & 0 \\ -\frac{4}{3} & \frac{11}{13} & -\frac{56}{41} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & 1 & -7 & -10 \\ 0 & -\frac{13}{3} & \frac{49}{3} & \frac{64}{3} \\ 0 & 0 & \frac{287}{13} & \frac{295}{13} \\ 0 & 0 & 0 & \frac{312}{41} \end{bmatrix}$

3.

$$\begin{pmatrix} 11 & -14 & -18 \\ 2 & 19 & 1 \\ 17 & 4 & 10 \end{pmatrix}$$

4.

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

5.

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

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

7. $\frac{3(-12)^n}{2} - \frac{(-4)^n}{2}$

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

9. При $\lambda = -9$

10. Определитель: $300 - 18\lambda$, при $\lambda = [50/3]$ ранг равен 3, иначе 4