1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{6} & 1 & 0 & 0 \\ -\frac{5}{6} & \frac{13}{25} & 1 & 0 \\ -\frac{5}{6} & \frac{49}{25} & \frac{56}{17} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & -1 & -10 & -7 \\ 0 & \frac{25}{6} & -\frac{55}{3} & -\frac{89}{6} \\ 0 & 0 & \frac{51}{5} & -\frac{3}{25} \\ 0 & 0 & 0 & \frac{1669}{85} \end{bmatrix}$

3.

$$\begin{pmatrix} -18 & 12 & 7 \\ -14 & -4 & -19 \\ -16 & -20 & -12 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,2)(3,7,9,4,8,5,6), ord = 14, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 1 & 7 & 8 & 6 & 3 & 9 & 5 & 4 \end{pmatrix} = (1,2)(3,7,9,4,8,5,6)$$

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

7. $-\frac{12(-12)^n}{37} + \frac{49(-49)^n}{37}$

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

9. При $\lambda = -5$

10. Определитель: $-26\lambda - 272$, при $\lambda = [-136/13]$ ранг равен 3, иначе 4