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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{2} & 1 & 0 & 0 \\ -\frac{3}{8} & -\frac{3}{16} & 1 & 0 \\ \frac{3}{8} & -\frac{17}{16} & -\frac{65}{29} & 1 \end{bmatrix}, U = \begin{bmatrix} 8 & -6 & 2 & -2 \\ 0 & -4 & -6 & 5 \\ 0 & 0 & \frac{29}{8} & -\frac{157}{16} \\ 0 & 0 & 0 & -\frac{288}{29} \end{bmatrix}$

3.
$$\begin{pmatrix} -16 & 7 & 0 \\ 4 & 19 & -15 \\ -17 & 18 & -17 \end{pmatrix}$$

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

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

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

7. брак

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

9. При $\lambda = -8$

10. Определитель: $25\lambda + 470$, при $\lambda = [-94/5]$ ранг равен 3, иначе 4