1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{3} & 1 & 0 & 0 \\ -\frac{5}{6} & \frac{65}{88} & 1 & 0 \\ -\frac{2}{3} & -\frac{4}{11} & -\frac{408}{881} & 1 \end{bmatrix}, U = \begin{bmatrix} 6 & 7 & 2 & -1 \\ 0 & \frac{44}{3} & \frac{19}{3} & \frac{13}{3} \\ 0 & 0 & -\frac{881}{88} & -\frac{707}{88} \\ 0 & 0 & 0 & -\frac{715}{881} \end{bmatrix}$

3.

$$\begin{pmatrix} -11 & -14 & 6 \\ -5 & -19 & -2 \\ -8 & -5 & -3 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,5,6)(2,7,3,8,4,9), ord = 6, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 9 & 7 & 8 & 1 & 5 & 2 & 3 & 4 \end{pmatrix} = (1,6,5)(2,9,4,8,3,7)$$

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

7. $-\frac{4(-4)^n}{45} + \frac{49(-49)^n}{45}$

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

9. При $\lambda = -2$

10. Определитель: $-35\lambda - 188$, при $\lambda = [-188/35]$ ранг равен 3, иначе 4