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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -4 & 1 & 0 & 0 \\ -6 & -\frac{8}{5} & 1 & 0 \\ 2 & \frac{2}{5} & -\frac{12}{53} & 1 \end{bmatrix}$, $U = \begin{bmatrix} -1 & 1 & -6 & 7 \\ 0 & -5 & -22 & 22 \\ 0 & 0 & -\frac{371}{5} & \frac{351}{5} \\ 0 & 0 & 0 & -\frac{684}{53} \end{bmatrix}$

3. $$\begin{pmatrix} 18 & -20 & -6 \\ -7 & 2 & -17 \\ 14 & 18 & 8 \end{pmatrix}$$

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

5. $$\sigma = (1,8,2,5,7)(3,6,9,4), ord = 20, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 8 & 6 & 3 & 2 & 9 & 5 & 1 & 4 \end{pmatrix} = (1,7,5,2,8)(3,6,9,4)$$

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

7. $\frac{(-4)^n}{5} + \frac{4 \cdot 16^n}{5}$

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

9. При $\lambda = -1$

10. Определитель: $216 - 174\lambda$, при $\lambda = [36/29]$ ранг равен 3, иначе 4