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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{1}{2} & 1 & 0 & 0 \\ \frac{3}{8} & \frac{9}{4} & 1 & 0 \\ -\frac{5}{8} & -\frac{55}{36} & -\frac{47}{45} & 1 \end{bmatrix}$, $U = \begin{bmatrix} 8 & -3 & -5 & 4 \\ 0 & \frac{9}{2} & \frac{7}{2} & 6 \\ 0 & 0 & -5 & -8 \\ 0 & 0 & 0 & \frac{149}{45} \end{bmatrix}$

3. $$\begin{pmatrix} -9 & 3 & -2 \\ 9 & 14 & 11 \\ -5 & -7 & -19 \end{pmatrix}$$

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

5. $$\sigma = (1,2,5,4)(3,6,8,7,9), ord = 20, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 5 & 9 & 1 & 4 & 3 & 8 & 6 & 7 \end{pmatrix} = (1,2,5,4)(3,9,7,8,6)$$

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

7. $-(-27)^n + 2(-54)^n$

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

9. При $\lambda = -4$

10. Определитель: $3\lambda - 24$, при $\lambda = [8]$ ранг равен 3, иначе 4