1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -4 & 1 & 0 & 0 \\ -2 & 2 & 1 & 0 \\ \frac{5}{2} & 0 & \frac{27}{32} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & 0 & 5 & 0 \\ 0 & -2 & 16 & -7 \\ 0 & 0 & -16 & 13 \\ 0 & 0 & 0 & -\frac{191}{32} \end{bmatrix}$

3.

$$\begin{pmatrix} -7 & -19 & 18 \\ -10 & -3 & -12 \\ -13 & -12 & -15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,8,5,6)(2,3,4,9,7), ord = 20, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 3 & 4 & 9 & 6 & 1 & 2 & 5 & 7 \end{pmatrix} = (1,8,5,6)(2,3,4,9,7)$$

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

7. $-\frac{5 \cdot 10^n}{9} + \frac{14 \cdot 28^n}{9}$

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

9. При $\lambda = -4$

10. Определитель: $12 - 30\lambda$, при $\lambda = [2/5]$ ранг равен 3, иначе 4