

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{4} & 1 & 0 & 0 \\ 2 & -\frac{16}{19} & 1 & 0 \\ \frac{5}{4} & -\frac{3}{19} & \frac{4}{15} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & -2 & 1 & 2 \\ 0 & -\frac{19}{2} & -\frac{35}{4} & -\frac{3}{2} \\ 0 & 0 & -\frac{45}{19} & \frac{14}{19} \\ 0 & 0 & 0 & \frac{1}{15} \end{bmatrix}$$

3.

$$\begin{pmatrix} 8 & -14 & 14 \\ -9 & -3 & 12 \\ 7 & 13 & -14 \end{pmatrix}$$

4.

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

5.

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

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.  $-8(-72)^n + 9(-81)^n$

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

9. При  $\lambda = 7$

10. Определитель:  $52\lambda - 194$ , при  $\lambda = [97/26]$  ранг равен 3, иначе 4