

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{6}{7} & 1 & 0 & 0 \\ \frac{3}{7} & -\frac{15}{26} & 1 & 0 \\ -\frac{6}{7} & -\frac{33}{26} & \frac{70}{267} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & 5 & -10 & -2 \\ 0 & \frac{26}{7} & \frac{88}{7} & \frac{26}{7} \\ 0 & 0 & \frac{267}{13} & -5 \\ 0 & 0 & 0 & -\frac{718}{267} \end{bmatrix}$$

3.

$$\begin{pmatrix} 2 & -11 & 18 \\ -1 & 14 & -19 \\ -6 & -9 & -3 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{18(-36)^n}{43} + \frac{25 \cdot 50^n}{43}$$

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

9. При  $\lambda = 7$

10. Определитель:  $21\lambda + 486$ , при  $\lambda = [-162/7]$  ранг равен 3, иначе 4