

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{9}{2} & 1 & 0 & 0 \\ -\frac{9}{2} & \frac{59}{33} & 1 & 0 \\ \frac{1}{2} & \frac{1}{11} & -\frac{37}{156} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & -5 & 4 & -6 \\ 0 & -\frac{33}{2} & 18 & -23 \\ 0 & 0 & -\frac{156}{11} & \frac{268}{33} \\ 0 & 0 & 0 & \frac{821}{117} \end{bmatrix}$$

3.

$$\begin{pmatrix} -14 & 5 & -2 \\ 11 & -5 & -19 \\ 14 & 1 & -7 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 5, 8, 3)(2, 7, 6, 4), \text{ord} = 20, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 7 & 5 & 2 & 1 & 4 & 6 & 9 & 3 \end{pmatrix} = (1, 8, 9, 3, 5)(2, 7, 6, 4)$$

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

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

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

$$7. \frac{6(-24)^n}{11} + \frac{5 \cdot 20^n}{11}$$

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

9. При $\lambda = 9$

10. Определитель: $40 - 94\lambda$, при $\lambda = [20/47]$ ранг равен 3, иначе 4