

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{9}{4} & 1 & 0 & 0 \\ 1 & -\frac{20}{3} & 1 & 0 \\ -\frac{1}{2} & -\frac{14}{3} & \frac{152}{167} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & 3 & -2 & 1 \\ 0 & \frac{3}{4} & -\frac{17}{2} & -\frac{23}{4} \\ 0 & 0 & -\frac{167}{3} & -\frac{103}{3} \\ 0 & 0 & 0 & \frac{320}{167} \end{bmatrix}$$

3.

$$\begin{pmatrix} -8 & 14 & 10 \\ -20 & 19 & -3 \\ 18 & -7 & -3 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 4, 5)(2, 7)(3, 6, 8), \text{ord} = 12, \sigma^{-797} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 5 & 7 & 6 & 9 & 4 & 8 & 2 & 3 & 1 \end{pmatrix} = (1, 5, 4, 9)(2, 7)(3, 6, 8)$$

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

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

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

$$7. \frac{5(-20)^n}{23} + \frac{18 \cdot 72^n}{23}$$

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

9. При  $\lambda = 6$

10. Определитель:  $559 - 94\lambda$ , при  $\lambda = [559/94]$  ранг равен 3, иначе 4