

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{1}{4} & 1 & 0 & 0 \\ \frac{1}{4} & -\frac{31}{21} & 1 & 0 \\ -\frac{3}{4} & -3 & \frac{441}{236} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & -9 & -8 & 8 \\ 0 & \frac{21}{4} & 11 & 5 \\ 0 & 0 & \frac{236}{21} & \frac{29}{21} \\ 0 & 0 & 0 & \frac{5055}{236} \end{bmatrix}$$

3.

$$\begin{pmatrix} 2 & 17 & -12 \\ -1 & -9 & -7 \\ -13 & -6 & 15 \end{pmatrix}$$

4.

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

5.

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

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

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

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

7. $3(-12)^n - 2(-8)^n$

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

9. При $\lambda = -10$

10. Определитель: $-105\lambda - 84$, при $\lambda = [-4/5]$ ранг равен 3, иначе 4