

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{9}{2} & 1 & 0 & 0 \\ \frac{5}{2} & -\frac{5}{9} & 1 & 0 \\ 4 & -\frac{16}{27} & -\frac{244}{21} & 1 \end{bmatrix}, U = \begin{bmatrix} -2 & -7 & -8 & -4 \\ 0 & -\frac{81}{2} & -37 & -25 \\ 0 & 0 & -\frac{14}{9} & -\frac{98}{9} \\ 0 & 0 & 0 & -\frac{388}{3} \end{bmatrix}$$

3.

$$\begin{pmatrix} 14 & 8 & -1 \\ 19 & -10 & 18 \\ 6 & -19 & -1 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 8, 2, 9, 7, 6)(3, 5), \text{ord} = 14, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 1 & 5 & 7 & 3 & 2 & 8 & 6 & 4 \end{pmatrix} = (1, 9, 4, 7, 8, 6, 2)(3, 5)$$

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

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

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

$$7. \frac{9(-18)^n}{29} + \frac{20 \cdot 40^n}{29}$$

$$8. 3 + -3 * x + 0 * x^2 + -3 * x^3 + -2 * x^4$$

9. При $\lambda = 5$

10. Определитель: $94\lambda + 158$, при $\lambda = [-79/47]$ ранг равен 3, иначе 4