

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{3}{2} & 1 & 0 & 0 \\ -\frac{1}{2} & -\frac{3}{17} & 1 & 0 \\ \frac{1}{6} & \frac{35}{51} & -\frac{313}{216} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & -5 & -2 & 1 \\ 0 & \frac{17}{2} & -7 & \frac{3}{2} \\ 0 & 0 & -\frac{72}{17} & \frac{132}{17} \\ 0 & 0 & 0 & \frac{199}{18} \end{bmatrix}$$

3.

$$\begin{pmatrix} 12 & -19 & 18 \\ -14 & 7 & -14 \\ 3 & 11 & -1 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 7, 4, 8)(2, 3, 5, 9), \text{ord} = 20, \sigma^{-821} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 9 & 2 & 7 & 3 & 1 & 6 & 4 & 5 \end{pmatrix} = (1, 8, 4, 7, 6)(2, 9, 5, 3)$$

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

$$7. -\frac{16^n}{4} + \frac{5 \cdot 80^n}{4}$$

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

9. При $\lambda = 0$

10. Определитель: $6\lambda + 132$, при $\lambda = [-22]$ ранг равен 3, иначе 4