

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 7 & 1 & 0 & 0 \\ 5 & 23 & 1 & 0 \\ 8 & 7 & -\frac{2}{13} & 1 \end{bmatrix}, U = \begin{bmatrix} 8 & -4 & 6 & -5 \\ 0 & \frac{7}{2} & -\frac{21}{4} & \frac{91}{8} \\ 0 & 0 & \frac{39}{2} & -\frac{147}{4} \\ 0 & 0 & 0 & -\frac{158}{13} \end{bmatrix}$$

3.

$$\begin{pmatrix} -5 & 6 & 19 \\ 14 & 3 & 19 \\ -11 & 3 & -16 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3)(2, 4, 9, 7, 5, 8, 6), \text{ord} = 14, \sigma^{-821} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 8 & 1 & 6 & 9 & 5 & 4 & 7 & 2 \end{pmatrix} = (1, 3)(2, 8, 7, 4, 6, 5, 9)$$

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

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

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

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

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

$$7. \frac{2(-20)^n}{5} + \frac{3 \cdot 30^n}{5}$$

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

9. При $\lambda = -6$

10. Определитель: $105\lambda - 282$, при $\lambda = [94/35]$ ранг равен 3, иначе 4