

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ \frac{1}{3} & -\frac{8}{15} & 1 & 0 \\ -\frac{3}{2} & -\frac{7}{5} & \frac{291}{28} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & -4 & 5 & 5 \\ 0 & 5 & 3 & -7 \\ 0 & 0 & \frac{14}{15} & -\frac{17}{5} \\ 0 & 0 & 0 & \frac{645}{28} \end{bmatrix}$$

3.

$$\begin{pmatrix} 1 & 18 & 10 \\ -16 & 0 & 12 \\ -20 & -20 & 3 \end{pmatrix}$$

4.

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

5.

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

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

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

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

$$7. \frac{5(-10)^n}{26} + \frac{21 \cdot 42^n}{26}$$

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

9. При $\lambda = -6$

10. Определитель: $806 - 236\lambda$, при $\lambda = [403/118]$ ранг равен 3, иначе 4