

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 4 & 1 & 0 & 0 \\ 9 & 18 & 1 & 0 \\ 7 & -\frac{34}{11} & -\frac{7}{5} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & -3 & -1 & 0 \\ 0 & -\frac{11}{3} & -\frac{5}{9} & -4 \\ 0 & 0 & \frac{140}{33} & \frac{6}{11} \\ 0 & 0 & 0 & -\frac{53}{5} \end{bmatrix}$$

3.

$$\begin{pmatrix} -2 & -1 & 7 \\ 11 & 5 & 16 \\ -14 & 4 & -12 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 2)(3, 7, 9)(5, 8, 6), \text{ord} = 3, \sigma^{-733} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 9 & 1 & 6 & 8 & 3 & 5 & 7 \end{pmatrix} = (1, 2, 4)(3, 9, 7)(5, 6, 8)$$

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

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

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

$$7. -\frac{3 \cdot 18^n}{5} + \frac{8 \cdot 48^n}{5}$$

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

9. При  $\lambda = 9$

10. Определитель:  $36\lambda - 48$ , при  $\lambda = [4/3]$  ранг равен 3, иначе 4