

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -2 & 1 & 0 & 0 \\ -5 & \frac{7}{6} & 1 & 0 \\ -9 & \frac{11}{3} & 0 & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & 4 & -10 & 2 \\ 0 & 12 & -27 & 7 \\ 0 & 0 & -\frac{21}{2} & \frac{59}{6} \\ 0 & 0 & 0 & -\frac{5}{3} \end{bmatrix}$$

3.

$$\begin{pmatrix} -16 & 13 & -18 \\ 12 & 1 & 12 \\ -7 & -12 & -10 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 2)(4, 8, 7, 5, 6, 9), \text{ord} = 6, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 3 & 1 & 9 & 7 & 5 & 8 & 4 & 6 \end{pmatrix} = (1, 2, 3)(4, 9, 6, 5, 7, 8)$$

$$6. \text{Id}; (1, 2, 4, 7, 5, 3, 6); (1, 3, 7, 2, 6, 5, 4); (1, 4, 5, 6, 2, 7, 3); \\ (1, 5, 2, 3, 4, 6, 7); (1, 6, 3, 5, 7, 4, 2); (1, 7, 6, 4, 3, 2, 5);$$

$$7. -\frac{4(-28)^n}{5} + \frac{9(-63)^n}{5}$$

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

$$9. \text{При } \lambda = 5$$

$$10. \text{Определитель: } 156 - 96\lambda, \text{ при } \lambda = [13/8] \text{ ранг равен 3, иначе 4}$$