

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{6}{7} & 1 & 0 & 0 \\ -\frac{4}{7} & 3 & 1 & 0 \\ -\frac{2}{7} & -\frac{57}{11} & -\frac{53}{77} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & 4 & -1 & 2 \\ 0 & -\frac{11}{7} & \frac{8}{7} & \frac{54}{7} \\ 0 & 0 & -14 & -31 \\ 0 & 0 & 0 & \frac{2095}{77} \end{bmatrix}$$

3.

$$\begin{pmatrix} 16 & -19 & -19 \\ -1 & 6 & -13 \\ -9 & -14 & -18 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 9, 3, 4, 8)(2, 5, 7), \text{ord} = 6, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 5 & 4 & 8 & 7 & 9 & 2 & 1 & 3 \end{pmatrix} = (1, 6, 9, 3, 4, 8)(2, 5, 7)$$

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

$$7. -3(-21)^n + 4(-28)^n$$

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

$$9. \text{При } \lambda = 5$$

$$10. \text{Определитель: } 98\lambda - 920, \text{ при } \lambda = [460/49] \text{ ранг равен } 3, \text{ иначе } 4$$