

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 4 & 1 & 0 & 0 \\ 3 & 39 & 1 & 0 \\ 2 & 22 & 1 & 0 \\ 3 & -\frac{17}{11} & \frac{43}{17} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & 1 & 9 & -3 \\ 0 & \frac{11}{3} & -5 & 5 \\ 0 & 0 & -\frac{51}{11} & -\frac{125}{11} \\ 0 & 0 & 0 & \frac{790}{17} \end{bmatrix}$$

3.

$$\begin{pmatrix} 16 & 2 & 1 \\ 15 & -12 & 14 \\ 16 & -1 & -20 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 3, 2, 4, 6, 9)(7, 8), \text{ord} = 14, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 3 & 5 & 2 & 1 & 4 & 8 & 7 & 6 \end{pmatrix} = (1, 9, 6, 4, 2, 3, 5)(7, 8)$$

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

7. брак

$$8. 0 + 1 * x + 4 * x^2 + -3 * x^3 + -2 * x^4$$

9. При $\lambda = -7$

10. Определитель: $88 - 8\lambda$, при $\lambda = [11]$ ранг равен 3, иначе 4