

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{4} & 1 & 0 & 0 \\ \frac{3}{8} & \frac{13}{22} & 1 & 0 \\ -\frac{3}{8} & -\frac{5}{22} & -\frac{107}{133} & 1 \end{bmatrix}, U = \begin{bmatrix} -8 & 6 & 6 & -7 \\ 0 & -\frac{11}{2} & -\frac{21}{2} & -\frac{5}{4} \\ 0 & 0 & -\frac{133}{22} & \frac{26}{11} \\ 0 & 0 & 0 & \frac{664}{133} \end{bmatrix}$$

3.

$$\begin{pmatrix} -6 & -20 & -11 \\ 15 & 17 & -20 \\ -10 & 8 & 9 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 9, 6, 3)(2, 5)(4, 7), \text{ord} = 10, \sigma^{-727} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 5 & 9 & 7 & 2 & 8 & 4 & 3 & 1 \end{pmatrix} = (1, 6, 8, 3, 9)(2, 5)(4, 7)$$

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

7. $-2 \cdot 6^n + 3 \cdot 9^n$

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

9. При $\lambda = -7$

10. Определитель: $154\lambda - 238$, при $\lambda = [17/11]$ ранг равен 3, иначе 4