

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{3} & 1 & 0 & 0 \\ -\frac{5}{3} & \frac{65}{88} & 1 & 0 \\ -\frac{5}{3} & -\frac{4}{11} & -\frac{408}{881} & 1 \end{bmatrix}, U = \begin{bmatrix} 6 & 7 & 2 & -1 \\ 0 & \frac{44}{3} & \frac{19}{3} & \frac{13}{3} \\ 0 & 0 & -\frac{881}{88} & -\frac{707}{88} \\ 0 & 0 & 0 & -\frac{715}{881} \end{bmatrix}$$

3.

$$\begin{pmatrix} -11 & -14 & 6 \\ -5 & -19 & -2 \\ -8 & -5 & -3 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 6)(2, 7, 3, 8, 4, 9), \text{ord} = 6, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 9 & 7 & 8 & 1 & 5 & 2 & 3 & 4 \end{pmatrix} = (1, 6, 5)(2, 9, 4, 8, 3, 7)$$

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

$$7. -\frac{4(-4)^n}{45} + \frac{49(-49)^n}{45}$$

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

9. При $\lambda = -2$

10. Определитель: $-35\lambda - 188$, при $\lambda = [-188/35]$ ранг равен 3, иначе 4