

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 8 & 1 & 0 & 0 \\ -1 & \frac{5}{17} & 1 & 0 \\ 3 & 1 & \frac{272}{351} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & 3 & -4 & 0 \\ 0 & -17 & 26 & -1 \\ 0 & 0 & -\frac{351}{17} & -\frac{165}{17} \\ 0 & 0 & 0 & \frac{1465}{117} \end{bmatrix}$$

3.

$$\begin{pmatrix} -17 & 5 & -12 \\ -11 & 4 & 8 \\ -20 & 4 & -14 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 5, 7, 8, 2, 4)(3, 6), \text{ord} = 14, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 7 & 6 & 8 & 1 & 3 & 9 & 5 & 4 \end{pmatrix} = (1, 2, 7, 9, 4, 8, 5)(3, 6)$$

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

$$7. -\frac{7(-28)^n}{3} + \frac{10(-40)^n}{3}$$

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

9. При $\lambda = 3$

10. Определитель: $200 - 38\lambda$, при $\lambda = [100/19]$ ранг равен 3, иначе 4