

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{7} & 1 & 0 & 0 \\ -\frac{4}{7} & -\frac{2}{3} & 1 & 0 \\ \frac{8}{7} & 2 & -\frac{21}{19} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & -7 & 7 & 7 \\ 0 & 3 & -8 & 7 \\ 0 & 0 & -\frac{19}{3} & \frac{44}{3} \\ 0 & 0 & 0 & -\frac{15}{19} \end{bmatrix}$$

3.

$$\begin{pmatrix} 9 & 19 & 6 \\ -16 & 10 & 2 \\ -14 & -2 & 6 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 4, 7)(2, 9, 8, 6, 5), \text{ord} = 20, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 5 & 4 & 7 & 6 & 8 & 1 & 9 & 2 \end{pmatrix} = (1, 3, 4, 7)(2, 5, 6, 8, 9)$$

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

7. брак

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

9. При $\lambda = 8$

10. Определитель: $58\lambda - 908$, при $\lambda = [454/29]$ ранг равен 3, иначе 4