

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{7} & 1 & 0 & 0 \\ \frac{3}{7} & -\frac{57}{73} & 1 & 0 \\ \frac{10}{7} & \frac{48}{73} & -\frac{88}{141} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & 2 & -4 & 3 \\ 0 & -\frac{73}{7} & \frac{27}{7} & -\frac{22}{7} \\ 0 & 0 & \frac{564}{73} & -\frac{784}{73} \\ 0 & 0 & 0 & -\frac{694}{141} \end{bmatrix}$$

3.

$$\begin{pmatrix} -16 & -14 & 9 \\ -2 & 0 & 5 \\ -4 & -10 & 11 \end{pmatrix}$$

4.

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

5.

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

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

7. брак

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

9. При  $\lambda = -1$

10. Определитель:  $34\lambda + 80$ , при  $\lambda = [-40/17]$  ранг равен 3, иначе 4