

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{1}{2} & 1 & 0 & 0 \\ \frac{3}{4} & \frac{17}{7} & 1 & 0 \\ -\frac{3}{2} & -\frac{3}{7} & \frac{54}{289} & 1 \end{bmatrix}, U = \begin{bmatrix} 6 & 6 & -3 & 3 \\ 0 & -7 & \frac{17}{2} & -\frac{5}{2} \\ 0 & 0 & -\frac{289}{14} & -\frac{83}{14} \\ 0 & 0 & 0 & \frac{733}{289} \end{bmatrix}$$

3.

$$\begin{pmatrix} -20 & -12 & -14 \\ -10 & 5 & 1 \\ -18 & -1 & -19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 2, 7, 3, 5)(4, 9, 8), \text{ord} = 6, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 7 & 5 & 9 & 1 & 2 & 3 & 4 & 8 \end{pmatrix} = (1, 6, 2, 7, 3, 5)(4, 9, 8)$$

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

7.  $-15 \cdot 15^n + 16 \cdot 16^n$

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

9. При  $\lambda = 2$

10. Определитель:  $6\lambda + 11$ , при  $\lambda = [-11/6]$  ранг равен 3, иначе 4