

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{7} & 1 & 0 & 0 \\ -\frac{2}{7} & \frac{6}{7} & 1 & 0 \\ -\frac{6}{7} & \frac{1}{7} & \frac{689}{620} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & 0 & 9 & 6 \\ 0 & -7 & -\frac{115}{7} & \frac{12}{7} \\ 0 & 0 & \frac{620}{49} & -\frac{233}{49} \\ 0 & 0 & 0 & \frac{2593}{620} \end{bmatrix}$$

3.

$$\begin{pmatrix} -10 & -6 & 19 \\ -4 & 14 & 4 \\ 16 & 12 & -5 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{5(-40)^n}{9} + \frac{4 \cdot 32^n}{9}$$

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

9. При $\lambda = -4$

10. Определитель: $102\lambda - 106$, при $\lambda = [53/51]$ ранг равен 3, иначе 4