

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{1}{2} & 1 & 0 & 0 \\ \frac{5}{6} & \frac{3}{4} & 1 & 0 \\ \frac{7}{6} & \frac{13}{12} & \frac{99}{131} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & 6 & 4 & -9 \\ 0 & -12 & -11 & \frac{25}{2} \\ 0 & 0 & \frac{131}{12} & -\frac{23}{8} \\ 0 & 0 & 0 & -\frac{2255}{786} \end{bmatrix}$$

3.

$$\begin{pmatrix} 6 & -15 & -17 \\ -15 & -4 & -17 \\ 19 & -11 & -15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 5)(2, 6, 9, 8, 4, 7), \text{ord} = 6, \sigma^{-821} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 6 & 5 & 7 & 1 & 9 & 2 & 4 & 8 \end{pmatrix} = (1, 3, 5)(2, 6, 9, 8, 4, 7)$$

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

$$7. \frac{5(-50)^n}{6} + \frac{10^n}{6}$$

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

9. При  $\lambda = 1$

10. Определитель:  $2\lambda + 476$ , при  $\lambda = [-238]$  ранг равен 3, иначе 4