

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{4}{9} & 1 & 0 & 0 \\ \frac{8}{9} & \frac{17}{40} & 1 & 0 \\ -\frac{2}{9} & \frac{7}{40} & -\frac{67}{43} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & -8 & -2 & 9 \\ 0 & -\frac{40}{9} & \frac{44}{9} & 2 \\ 0 & 0 & -\frac{43}{10} & -\frac{237}{20} \\ 0 & 0 & 0 & -\frac{938}{43} \end{bmatrix}$$

3.

$$\begin{pmatrix} 14 & -17 & 15 \\ -4 & -7 & 16 \\ 11 & -14 & -11 \end{pmatrix}$$

4.

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

5.

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

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

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

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

$$7. \frac{16(-32)^n}{25} + \frac{9 \cdot 18^n}{25}$$

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

9. При  $\lambda = -5$

10. Определитель:  $-44\lambda$ , при  $\lambda = [0]$  ранг равен 3, иначе 4