

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{2} & 1 & 0 & 0 \\ 0 & \frac{18}{5} & 1 & 0 \\ \frac{4}{5} & -\frac{32}{25} & -\frac{192}{565} & 1 \end{bmatrix}, U = \begin{bmatrix} -10 & 1 & -10 & 0 \\ 0 & -\frac{5}{2} & -12 & -7 \\ 0 & 0 & \frac{226}{5} & \frac{166}{5} \\ 0 & 0 & 0 & \frac{4137}{565} \end{bmatrix}$$

3.

$$\begin{pmatrix} -18 & 4 & 2 \\ -12 & -2 & 11 \\ -1 & -1 & 11 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 6, 5, 7)(2, 4, 9, 8), \text{ord} = 20, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 4 & 5 & 9 & 1 & 7 & 3 & 2 & 8 \end{pmatrix} = (1, 6, 7, 3, 5)(2, 4, 9, 8)$$

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

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

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

$$7. \frac{5(-15)^n}{11} + \frac{6 \cdot 18^n}{11}$$

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

9. При  $\lambda = 9$

10. Определитель:  $89\lambda + 326$ , при  $\lambda = [-326/89]$  ранг равен 3, иначе 4