

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{7}{4} & 1 & 0 & 0 \\ \frac{5}{5} & -\frac{39}{82} & 1 & 0 \\ \frac{2}{5} & -\frac{21}{41} & \frac{514}{325} & 1 \end{bmatrix}, U = \begin{bmatrix} -5 & 6 & -1 & 7 \\ 0 & \frac{82}{5} & \frac{13}{5} & -\frac{1}{5} \\ 0 & 0 & -\frac{325}{82} & -\frac{385}{82} \\ 0 & 0 & 0 & \frac{749}{65} \end{bmatrix}$$

3.

$$\begin{pmatrix} 19 & 2 & 3 \\ 8 & -12 & 15 \\ 16 & 18 & 1 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 3)(2, 9, 6, 7, 8, 5), \text{ord} = 6, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 9 & 1 & 3 & 2 & 7 & 8 & 5 & 6 \end{pmatrix} = (1, 4, 3)(2, 9, 6, 7, 8, 5)$$

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

$$7. \frac{27(-27)^n}{107} + \frac{80 \cdot 80^n}{107}$$

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

9. При $\lambda = 6$

10. Определитель: -68λ , при $\lambda = [0]$ ранг равен 3, иначе 4