1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{1}{2} & 1 & 0 & 0 \\ \frac{3}{2} & \frac{11}{7} & 1 & 0 \\ \frac{1}{3} & -\frac{38}{63} & \frac{37}{396} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & 5 & 0 & 1 \\ 0 & -\frac{21}{2} & -8 & \frac{13}{2} \\ 0 & 0 & \frac{88}{7} & -\frac{117}{7} \\ 0 & 0 & 0 & -\frac{1921}{396} \end{bmatrix}$

3.

$$\begin{pmatrix} -16 & -16 & 2 \\ -7 & 13 & -14 \\ 5 & -9 & 5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,9,4,5,7,8,6)(2,3), ord = 14, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 3 & 2 & 9 & 4 & 8 & 5 & 7 & 1 \end{pmatrix} = (1,6,8,7,5,4,9)(2,3)$$

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

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

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

9. При $\lambda = 7$

10. Определитель: $58\lambda - 444$, при $\lambda = [222/29]$ ранг равен 3, иначе 4