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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 5 & 1 & 0 & 0 \\ \frac{7}{2} & \frac{20}{33} & 1 & 0 \\ -4 & -\frac{13}{11} & \frac{210}{37} & 1 \end{bmatrix}$, $U = \begin{bmatrix} -2 & -8 & 4 & -9 \\ 0 & 33 & -13 & 40 \\ 0 & 0 & -\frac{37}{33} & \frac{611}{66} \\ 0 & 0 & 0 & -\frac{1490}{37} \end{bmatrix}$

3. $$\begin{pmatrix} 9 & -9 & 11 \\ 1 & 12 & 13 \\ 2 & 8 & -2 \end{pmatrix}$$

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

5. $$\sigma = (1,6,7,9,4)(2,3,8,5), ord = 20, \sigma^{-743} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 3 & 8 & 6 & 2 & 9 & 4 & 5 & 1 \end{pmatrix} = (1,7,4,6,9)(2,3,8,5)$$

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

7. брак

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

9. При $\lambda = 7$

10. Определитель: $66-9\lambda$, при $\lambda = [22/3]$ ранг равен 3, иначе 4