Quiz 1
Due date: 27 March 2024
TA: 盧禹丞 E814

1. (25%) Solve the system with variables x_1, x_2, x_3:

$$\begin{bmatrix} 1 & -3 & 4 & 7 \\ 0 & 1 & 2 & 2 \\ 0 & 0 & 1 & 5 \end{bmatrix}.$$

2. (25%) Solve the system with variables x_1, x_2, x_3, x_4:

$$\begin{bmatrix} 1 & 0 & 8 & -5 & 6 \\ 0 & 1 & 4 & -9 & 3 \\ 0 & 0 & 1 & 1 & 2 \end{bmatrix}.$$

3. (25%) Compute $\begin{bmatrix} 1 & 0 & 0 & -3 \\ 0 & 1 & 3 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}^{2024}$.

4. (25%) Find $p(A)$ for $p(x) = x^2 - 2x + 1$ and $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$.