1. 請框出答案. 2. 不可使用手機、計算器，禁止作弊!
3. 請自備白紙書寫，作答完畢請拍照上傳 Googld Classroom
4. 照片請清晰並轉正

1. Let $T([x, y, z]) = [x - y, 2x + z, -x + 2y + z]$ an invertible linear transformation from $\mathbb{R}^3$ to $\mathbb{R}^3$. Find $T^{-1}([5, -3, 2])$

   Let A is the standard matrix representation of T.

$$A = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 0 & 1 \\ -1 & 2 & 1 \end{bmatrix}$$

   The standard matrix representation of T^{-1} is A^{-1}

$$A^{-1} = \begin{bmatrix} -2 & 1 & -1 \\ -3 & 1 & -1 \\ 4 & -1 & 2 \end{bmatrix}$$

$$T^{-1}([5, -3, 2]) = (A^{-1} \begin{bmatrix} 5 \\ -3 \\ 2 \end{bmatrix})^T = [-15, -20, 27]$$