1 Question 1

Given

1. $\mathbf{A} = \begin{bmatrix} 3 & 0 \\ 0 & -2 \end{bmatrix}$
2. $T : \mathbb{R}^2 \to \mathbb{R}^2$
3. $T(\mathbf{x}) = \mathbf{A}\mathbf{x}$

Find

1. The image of u under T where $\mathbf{u} = \begin{bmatrix} 3 \\ -1 \end{bmatrix}$
2. The image of u under T where $\mathbf{v} = \begin{bmatrix} 0 \\ 1.5 \end{bmatrix}$
3. The image of $\mathbf{u} + \mathbf{v}$

1.1 Work

1.