1. Consider the matrix
\[ A = \begin{pmatrix} -6 & -18 & 1 & 8 \\ -5 & -15 & -2 & 1 \\ -1 & -3 & -1 & -1 \end{pmatrix} \]
and the matrix transformation \( T(x) = Ax \).

   a) [1 point ] What is the domain of \( T \)?

   b) [1 point ] What is the codomain of \( T \)?

   c) [3 points] Find a basis for the range of \( T \).

   d) [2 points] What is the nullity of \( A \)?
2. [3 points] Consider the matrix transformation $T : \mathbb{R}^2 \to \mathbb{R}^2$ defined by

$$T(x) = \begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix} x.$$  

Draw the image of the $F$ under this transformation.