These problems concern the affine function $A$ which maps the “F” shape as shown:

1. Express transformation $A: \mathbb{R}^2 \to \mathbb{R}^2$ in the form $A(x) = Mx + u$ where $M$ is a matrix and $u \in \mathbb{R}^2$. (Given $M$ and $u$ explicitly.)

2. Now express the inverse transformation $A^{-1}$ in the form $A^{-1}(x) = Nx + v$ where $N$ is a matrix and $v \in \mathbb{R}^2$. 