

$$9. (Kc)u = K(cu)$$

$$K(cu) = K \begin{bmatrix} cx \\ cx \end{bmatrix} = \begin{bmatrix} Kcx \\ Kcx \end{bmatrix} = Kc \begin{bmatrix} x \\ x \end{bmatrix}$$

$$(Kc)x = K(cu)$$

$$10. 1 \cdot u = u$$

$$1 \cdot \begin{bmatrix} x \\ x \end{bmatrix} = \begin{bmatrix} 1 \cdot x \\ 1 \cdot x \end{bmatrix} = \begin{bmatrix} x \\ x \end{bmatrix} = u$$

Question The set of all vectors $\begin{bmatrix} x \\ y \end{bmatrix}$ in \mathbb{R}^2

such that $xy \geq 0$ with the usual vector addition and multiplication.