Axioms 10 :

$$1u = u$$

$$1u = 1\begin{bmatrix} a_1 & 0 \\ 0 & b_1 \end{bmatrix}$$

$$= \begin{bmatrix} 1a_1 & 0 \\ 0 & 1b_1 \end{bmatrix}$$

$$= \begin{bmatrix} a_1 & 0 \\ 0 & b_1 \end{bmatrix}$$

$$\boxed{1u = u}$$

Then Axiom 10 is satisfied

Hence V is a vector space.

Question The set of all pairs Real numbers of the form $(1, x)$ with the operation

$$(1, y) + (1, y') = (1, y + y') \text{ and}$$

$$k(1, y) = (1, ky)$$

Question The set of all 2x2 matrix of the form $\begin{bmatrix} a & 1 \\ 1 & b \end{bmatrix}$ with matrix addition and multiplicati

Question $\begin{bmatrix} a & a+b \\ a+b & b \end{bmatrix}$