Department of Mathematics and Statistics

Quiz No. 1

Problem 1.(3 points.)Let V be the set of +ve real numbers. If x and y denote positive real numbers then, we write vectors in V as $\mathbf{X} = x$ and $\mathbf{Y} = y$. The addition and scalar multiplication in V is defined by : $\mathbf{X} + \mathbf{Y} = xy$ and $k\mathbf{X} = x^k$

(1): Find identity of the set V under addition and
(2): Check if the axioms under ”scalar multiplication” of the vector space are satisfied in V.

Problem 2(3 points) Check if set of vectors $S = \{(1,2,3),(0,1,2),(-2,0,1)\}$ in $\mathbb{R}^3$ are linearly independent or linearly dependent?.

Section: 

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Math302,Sem121
Problem 3 (2 points) Do vectors in above question span $\mathbb{R}^3$?

Problem 4 (2 points) Is $W=\{(x, y), x \geq 0, y \geq 0\}$ with standard operations is a subspace of $\mathbb{R}^2$?