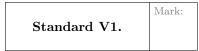
Name:	
J#:	Dr. Clontz
Date:	

MASTERY QUIZ DAY 14

Math 237 – Linear Algebra Fall 2017

Version 2

Show all work. Answers without work will not receive credit. You may use a calculator, but you must show all relevant work to receive credit for a standard.



Let V be the set of all points on the line x + y = 2 with the operations, for any $(x_1, y_1), (x_2, y_2) \in V$, $c \in \mathbb{R}$,

$$(x_1, y_1) \oplus (x_2, y_2) = (x_1 + x_2 - 1, y_1 + y_2 - 1)$$

 $c \odot (x_1, y_1) = (cx_1 - (c - 1), cy_1 - (c - 2))$

- (a) Show that this vector space has an additive identity element.
- (b) Determine if V is a vector space or not. Justify your answer.

Standard V3.

$$\begin{bmatrix}
2 \\
-1 \\
4
\end{bmatrix}, \begin{bmatrix}
3 \\
12 \\
-9
\end{bmatrix}, \begin{bmatrix}
1 \\
4 \\
-3
\end{bmatrix}, \begin{bmatrix}
-4 \\
2 \\
-8
\end{bmatrix} = \mathbb{R}^3?$$

Standard V4.	Mark:

Let W be the set of all polynomials of the form $ax^3 + bx$. Determine if W is a subspace of \mathcal{P}^3 .

Standard S2.

Mark:

Determine if the set
$$\left\{ \begin{bmatrix} 1\\1\\-1 \end{bmatrix}, \begin{bmatrix} 3\\-1\\1 \end{bmatrix}, \begin{bmatrix} 2\\0\\-2 \end{bmatrix} \right\}$$
 is a basis of \mathbb{R}^3

Additional Notes/Marks