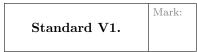
Name:	
J#:	Dr. Clontz
Date:	

## MASTERY QUIZ DAY 14

Math 237 – Linear Algebra Fall 2017

## Version 4

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 real numbers with the operations, for any  $x, y \in V$ ,  $c \in \mathbb{R}$ ,

$$x \oplus y = \sqrt{x^2 + y^2}$$
$$c \odot x = cx$$

- (a) Show that the vector addition  $\oplus$  is associative:  $x \oplus (y \oplus z) = (x \oplus y) \oplus z$ .
- (b) Determine if V is a vector space or not. Justify your answer.

Standard V3.

Mark:
$$\begin{bmatrix} -3 \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 5 \\ -1 \\ -2 \end{bmatrix}, \begin{bmatrix} 2 \\ 0 \\ -1 \end{bmatrix}, \text{ and } \begin{bmatrix} 0 \\ 2 \\ -1 \end{bmatrix} \text{ span } \mathbb{R}^3$$

Standard V4.	Mark:
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Let W be the set of all complex numbers a+bi satisfying a=2b. Determine if W is a subspace of  $\mathbb C$ .

Standard S2.

Mark:

Determine if the set  $\{x^2 + x - 1, 3x^2 - x + 1, 2x - 2\}$  is a basis of  $\mathcal{P}_2$ 

Additional Notes/Marks