

Name:
J#:
Date:

Dr. Clontz

## MASTERY QUIZ DAY 12

Math 237 – Linear Algebra

### Version 1

Fall 2017

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.

<b>Standard V1.</b>	Mark:
---------------------	-------

Let  $V$  be the set of all real numbers with the operations, for any  $x, y \in V$ ,  $c \in \mathbb{R}$ ,

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

$$c \odot x = cx$$

- Show that the vector addition  $\oplus$  is associative.
- Determine if  $V$  is a vector space or not. Justify your answer.

<b>Standard V3.</b>	Mark:
---------------------	-------

Determine if the vectors  $\begin{bmatrix} 8 \\ 21 \\ -7 \end{bmatrix}$ ,  $\begin{bmatrix} -3 \\ -8 \\ 3 \end{bmatrix}$ ,  $\begin{bmatrix} -1 \\ -3 \\ 2 \end{bmatrix}$ , and  $\begin{bmatrix} 4 \\ 11 \\ -5 \end{bmatrix}$  span  $\mathbb{R}^3$ .

<b>Standard V4.</b>	Mark:
---------------------	-------

Determine if the set of all lattice points, i.e.  $\{(x,y) \mid x \text{ and } y \text{ are integers}\}$  is a subspace of  $\mathbb{R}^2$ .

<b>Additional Notes/Marks</b>	
-------------------------------	--