

Name:
J#:
Date:

Dr. Clontz

# MASTERY QUIZ DAY 10

Math 237 – Linear Algebra

## Version 6

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 E1.</b>	Mark:
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Write a system of linear equations corresponding to the following augmented matrix.

$$\left[ \begin{array}{ccc|c} -4 & -1 & 3 & 2 \\ 1 & 2 & -1 & 0 \\ -1 & 4 & 1 & 4 \end{array} \right]$$

<b>Standard E3.</b>	Mark:
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Solve the system of equations

$$x + 3y - 4z = 5$$

$$3x + 9y + z = 2$$

<b>Standard E4.</b>	Mark:
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Find a basis for the solution set to the homogeneous system of equations

$$4x_1 + 4x_2 + 3x_3 - 6x_4 = 0$$

$$-2x_3 - 4x_4 = 0$$

$$2x_1 + 2x_2 + x_3 - 4x_4 = 0$$

<b>Standard V1.</b>	Mark:
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Let  $V$  be the set of all real numbers together with the operations  $\oplus$  and  $\odot$  defined by, for any  $x, y \in V$  and  $c \in \mathbb{R}$ ,

$$x \oplus y = x + y - 3$$

$$c \odot x = cx - 3(c - 1)$$

- Show that this scalar multiplication  $\odot$  is associative.
- Determine if  $V$  is a vector space or not. Justify your answer

<b>Additional Notes/Marks</b>	
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