

Name:
J#:
Date:

Dr. Clontz

# MASTERY QUIZ DAY 10

Math 237 – Linear Algebra

## Version 4

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 an augmented matrix corresponding to the following system of linear equations.

$$\begin{aligned}x_1 + 3x_2 - 4x_3 + x_4 &= 5 \\3x_1 + 9x_2 + x_3 - 7x_4 &= 0 \\x_1 - x_3 + x_4 &= 1\end{aligned}$$

<b>Standard E3.</b>	Mark:
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Solve the following linear system.

$$\begin{aligned}4x_1 + 4x_2 + 3x_3 - 6x_4 &= 5 \\-2x_3 - 4x_4 &= 3 \\2x_1 + 2x_2 + x_3 - 4x_4 &= -1\end{aligned}$$

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

$$3x + 2y + z = 0$$

$$x + y + z = 0$$

<b>Standard V1.</b>	Mark:
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Let  $V$  be the set of all points on the line  $x + y = 2$  with the operations, for any  $(x_1, y_1), (x_2, y_2) \in V$ ,  $c \in \mathbb{R}$ ,

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

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

Determine if  $V$  is a vector space or not.

<b>Additional Notes/Marks</b>	
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