

Name:
J#:
Date:

Dr. Clontz

MASTERY QUIZ DAY 10

Math 237 – Linear Algebra

Version 5

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.

Standard E1.	Mark:
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Write an augmented matrix corresponding to the following system of linear equations.

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

Standard E3.	Mark:
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Find the solution set for the following system of linear equations.

$$\begin{aligned}2x_1 + 3x_2 - 5x_3 + 14x_4 &= 8 \\x_1 + x_2 - x_3 + 5x_4 &= 3\end{aligned}$$

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

$$2x_1 + 3x_2 - 5x_3 + 14x_4 = 0$$

$$x_1 + x_2 - x_3 + 5x_4 = 0$$

Standard V1.	Mark:
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Let V be the set of all pairs of real numbers with the operations, for any $(x_1, y_1), (x_2, y_2) \in V, c \in \mathbb{R}$,

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

$$c \odot (x_1, y_1) = (0, cy_1)$$

- (a) Show that this scalar multiplication \odot distributes over scalar addition.
- (b) Determine if V is a vector space or not. Justify your answer.

Additional Notes/Marks	
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