

Name:
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Date:

Dr. Clontz

MASTERY QUIZ DAY 10

Math 237 – Linear Algebra

Version 2

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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Solve the following linear system.

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

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

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

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

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

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

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

$$c \odot (x_1, y_1) = (c^2 x_1, c^3 y_1)$$

Determine if V is a vector space or not.

Additional Notes/Marks	
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