

Name:
J#:
Date:

Dr. Clontz

MASTERY QUIZ DAY 22

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.

Standard A1.	Mark:
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Let $T : \mathbb{R}^3 \rightarrow \mathbb{R}^4$ be the linear transformation given by

$$T \left(\begin{bmatrix} x \\ y \\ z \end{bmatrix} \right) = \begin{bmatrix} -3x + y \\ -8x + 2y - z \\ 7x + 2y + 3z \\ 0 \end{bmatrix}.$$

Write the matrix for T with respect to the standard bases of \mathbb{R}^3 and \mathbb{R}^4 .

Standard A2.	Mark:
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Determine if $D : \mathbb{R}^{2 \times 2} \rightarrow \mathbb{R}$ given by $D \left(\begin{bmatrix} a & b \\ c & d \end{bmatrix} \right) = ad - bc$ is a linear transformation or not.

Standard M1.	Mark:
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Let

$C = \begin{bmatrix} 2 & 3 \\ 0 & 1 \end{bmatrix}$
 $D = \begin{bmatrix} 3 & 1 & 0 \end{bmatrix}$
 $E = \begin{bmatrix} 2 & 0 \\ 0 & -1 \\ 1 & -1 \end{bmatrix}$

Determine which of the six products CD , CE , DC , DE , EC , ED can be computed, and compute them.

Additional Notes/Marks	
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