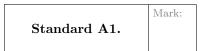
Name:	
J#:	Dr. Clontz
Date:	

## MASTERY QUIZ DAY 24

Math 237 – Linear Algebra Fall 2017

## Version 2

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.



Let  $T: \mathbb{R}^3 \to \mathbb{R}$  be the linear transformation given by

$$T\left(\begin{bmatrix} x_1\\x_2\\x_3\end{bmatrix}\right) = \begin{bmatrix} x_3 + 3x_1\end{bmatrix}.$$

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

Standard A2.

Mark:

Let  $T: \mathbb{R}^2 \to \mathbb{R}^2$  be given by  $T\left(\begin{bmatrix} x \\ y \end{bmatrix}\right) = \begin{bmatrix} x+y \\ \sqrt{x}+\sqrt{y} \end{bmatrix}$ . Determine if T is a linear transformation.

Standard M1.

Mark:

Let

$$A = \begin{bmatrix} 1 & 3 & -1 & -1 \\ 0 & 0 & 7 & 2 \end{bmatrix} \qquad B = \begin{bmatrix} 0 & 1 & 7 & 7 \\ -1 & -2 & 0 & 4 \\ 0 & 0 & 1 & 5 \end{bmatrix} \qquad C = \begin{bmatrix} 3 & 2 \\ 0 & 1 \\ -2 & -1 \end{bmatrix}$$

Exactly one of the six products AB, AC, BA, BC, CA, CB can be computed. Determine which one, and compute it.

Standard M2.	Ма	rk:			
Determine if the matrix	$\begin{bmatrix} 3 \\ 2 \\ 0 \\ 1 \end{bmatrix}$	$ \begin{array}{c} -1 \\ 1 \\ 1 \\ -2 \end{array} $	0 1 1 0	$\begin{bmatrix} 4 \\ -1 \\ 3 \\ 0 \end{bmatrix}$	is invertible.

Standard M3.

Find the inverse of the matrix  $\begin{bmatrix} 8 & 5 & 3 & 0 \\ 3 & 2 & 1 & 1 \\ 5 & -3 & 1 & -2 \\ -1 & 2 & 0 & 1 \end{bmatrix}.$ 

 ${\bf Additional\ Notes/Marks}$