Name:
J#:
Date:

Dr. Clontz

MASTERY QUIZ DAY 24 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:

Let $T:\mathbb{R}^4\to\mathbb{R}^2$ be the linear transformation given by

$$T\left(\begin{bmatrix}x_1\\x_2\\x_3\\x_4\end{bmatrix}\right)=\begin{bmatrix}x_1+3x_3\\3x_2-5x_3\end{bmatrix}.$$

Write the matrix for T with respect to the standard bases of $\mathbb{R}^4$ and $\mathbb{R}^2$.

Standard A2.	Mark:

Determine if $D:\mathbb{R}^{2\times 2}\to\mathbb{R}$ given by $D\left(\begin{bmatrix}a&b\\c&d\end{bmatrix}\right)=a-3c$ is a linear transformation or not.

Standard M1.	Mark:

Let

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

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

Standard M2.	Mark:

Determine if the matrix $\begin{bmatrix} 1 & 3 & -1 \\ 2 & 7 & 0 \\ -1 & -1 & 5 \end{bmatrix}$ is invertible.

Standard M3.	Mark:

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

Additional Notes/Marks	