Name:
J#:
Date:

Dr. Clontz

MASTERY QUIZ DAY 21 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 A3.	Mark:

Determine if each of the following linear transformations is injective (one-to-one) and/or surjective (onto).

(a) $S:\mathbb{R}^2\to\mathbb{R}^4$ given by the matrix $\begin{bmatrix}2&1\\1&2\\0&1\\3&-3\end{bmatrix}$.

(b) $T:\mathbb{R}^4\to\mathbb{R}^3$ given by the matrix $\begin{bmatrix}2&3&-1&1\\-1&1&1&1\\4&11&-1&5\end{bmatrix}$

Standard A4.	Mark:

Let $T:\mathbb{R}^4\to\mathbb{R}^3$ be the linear map given by $T\left(\begin{bmatrix}x\\y\\z\\w\end{bmatrix}\right)=\begin{bmatrix}8x-3y-z+4w\\y+3z-4w\\-7x+3y+2z-5w\end{bmatrix}$. Compute the kernel and image of T.

Additional Notes/Marks	