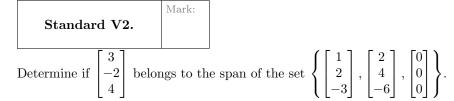
Name:	
J#:	Dr. Clontz
Date:	

## MASTERY QUIZ DAY 13

Math 237 – Linear Algebra Fall 2017

Version 6

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.



Solution: Since

RREF 
$$\left( \begin{bmatrix} 1 & 2 & 0 & 3 \\ 2 & 4 & 0 & -2 \\ -3 & -6 & 0 & 4 \end{bmatrix} \right) = \begin{bmatrix} 1 & 2 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

contains the contradiction 0 = 1,  $\begin{bmatrix} 3 \\ -2 \\ 4 \end{bmatrix}$  is not a linear combination of the three vectors.

Determine if the set of vectors  $\left\{ \begin{bmatrix} 3\\-1\\0\\4 \end{bmatrix}, \begin{bmatrix} 1\\2\\-2\\1 \end{bmatrix}, \begin{bmatrix} 3\\-8\\6\\5 \end{bmatrix} \right\}$  is linearly dependent or linearly independent.

Solution:

$$RREF \left( \begin{bmatrix} 3 & 1 & 3 \\ -1 & 2 & -8 \\ 0 & -2 & 6 \\ 4 & 1 & 5 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & -3 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Since the reduced row echelon form has a nonpivot column, the vectors are linearly dependent.

Additional Notes/Marks