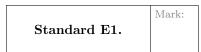
Name:	
J#:	Dr. Clontz
Date:	

## MASTERY QUIZ DAY 10

Math 237 – Linear Algebra Fall 2017

## Version 5

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.



Write a system of linear equations corresponding to the following augmented matrix.

$$\begin{bmatrix} 3 & -1 & 0 & 1 & 5 \\ -1 & 9 & 1 & -7 & 0 \\ 1 & 0 & -1 & 0 & -3 \end{bmatrix}$$

	Mark:
Standard E3.	

Solve the system of linear equations.

$$2x + y - z + w = 5$$
$$3x - y - 2w = 0$$
$$-x + 5z + 3w = -1$$

Standard E4.

Mark:

Find a basis for the solution set to the homogeneous system of equations

$$4x_1 + 4x_2 + 3x_3 - 6x_4 = 0$$
$$-2x_3 - 4x_4 = 0$$
$$2x_1 + 2x_2 + x_3 - 4x_4 = 0$$

Standard V1.

Let V be the set of all real numbers together with the operations  $\oplus$  and  $\odot$  defined by, for any  $x,y\in V$  and  $c\in\mathbb{R}$ ,

$$x \oplus y = x + y - 3$$
$$c \odot x = cx - 3(c - 1)$$

- (a) Show that this scalar multiplication  $\odot$  is associative.
- (b) Determine if V is a vector space or not. Justify your answer

Additional Notes/Marks