MATH 3191 Written Homework 1
____/20 points

Name: _____

Due: January 26th

Show all work that leads to your answers. I will be providing feedback on the work as well as the answers!

1. (10 points) Convert the following system of equations into an augmented matrix, find the reduced row echelon form, and find the set of all solutions to this system in parameterized form if necessary.

$$3x_1 + 4x_2 - 1x_3 = 10$$
$$3x_1 + 6x_2 - 3x_3 = 12$$

2. (10 points) Determine if the vector $\boldsymbol{w}$ is in the span of $\boldsymbol{u}$ and $\boldsymbol{v}$. If it is, give the coefficients that demonstrate this. IE give c_1 and c_2 such that

$$\boldsymbol{w} = c_1\boldsymbol{u} + c_2\boldsymbol{v}$$

Where

$$\boldsymbol{u} = \begin{bmatrix} 1 \\ 2 \\ 0 \end{bmatrix}, \qquad \boldsymbol{v} = \begin{bmatrix} 1 \\ -2 \\ 3 \end{bmatrix}, \qquad \boldsymbol{w} = \begin{bmatrix} 3 \\ -2 \\ 6 \end{bmatrix}$$