RUTGERS
UNIVERSITY | NEWARK

Math 235
Calculus III

Spring 2018

Quiz #1

Monday, January 29 2018

Duration: 15 min

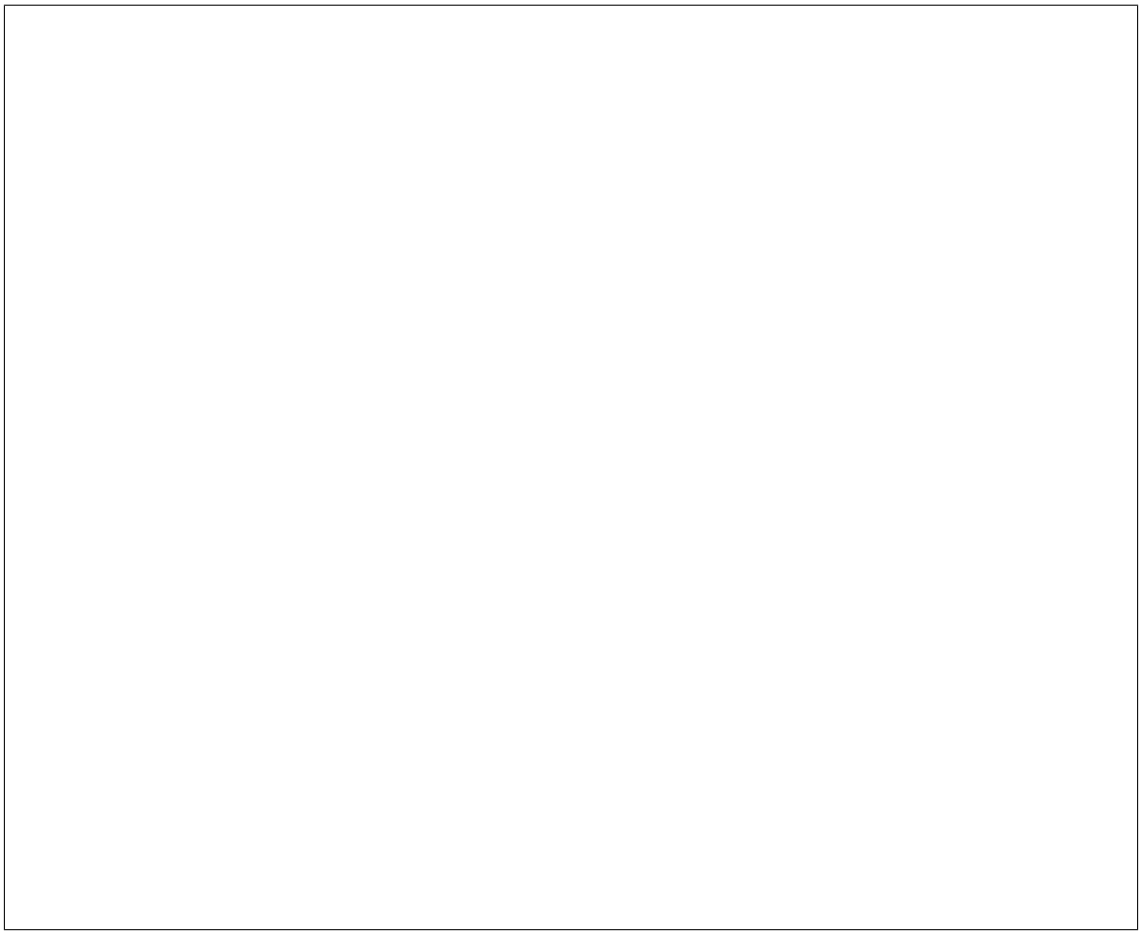
NAME: _____

Please write clearly and properly.

Problem	Grade
1	
2	
Total	

Problem 1 ($\sim$ 10 points.)**.** Consider the points $A(1, 1)$ and $B(-2, -3)$ in the xy-plane.

(1) Draw a quick sketch of the xy-plane with the points A and B and the vector $\overrightarrow{AB}$.



(2) Compute $\overrightarrow{AB}$ in coordinates. *In other words, find the expression* $\overrightarrow{AB} = (x, y)$.

(3) Compute the length of the vector $\overrightarrow{AB}$.

(4) Find two unit vectors that are parallel to $\overrightarrow{AB}$.

(5) Find two vectors of length 2 that are parallel to $\overrightarrow{AB}$.

Problem 2 (~ 5 points.)**.** True or False? *No explanations required*.

(1) For any two vectors $\overrightarrow{u}$ and $\overrightarrow{v}$,

$$\|\overrightarrow{u} + \overrightarrow{v}\| = \|\overrightarrow{u}\| + \|\overrightarrow{v}\|$$

(2) For any two vectors $\overrightarrow{u}$ and $\overrightarrow{v}$ and for any real number c,

$$c(\overrightarrow{u} - \overrightarrow{v}) = c\overrightarrow{u} - c\overrightarrow{v}$$

(3) Let M be any point on the unit circle. Then the vector $\overrightarrow{OM}$ is a unit vector .

(4) For any vector $\overrightarrow{u}$ and for any real number c,

$$\|c\overrightarrow{u}\| = |c|\|\overrightarrow{u}\|$$

(5) For any three vectors $\overrightarrow{u}$, $\overrightarrow{v}$ and $\overrightarrow{w}$, if $\overrightarrow{u}$ and $\overrightarrow{v}$ are parallel, and $\overrightarrow{v}$ and $\overrightarrow{w}$ are also parallel, then $\overrightarrow{u}$ and $\overrightarrow{w}$ must be parallel.
Hint: Note that any one of the three vectors could be the null vector.