

Math 1203 Quiz 7

March 5, 2019

Name: _____

Instructions: No calculators! Answer all problems in the space provided! Do your rough work on scrap paper.

1. Define $f'(x) =$ _____ (using limits)

2. Let $f(x) = 2 - x^2$.

(a) Use the limit definition of the derivative to find $f'(x)$. Show your work!

(b) Find the equation of the tangent line to $f(x)$ at the point where $x = 1$. _____

3. Complete the table:

Function (assume all are continuous everywhere)	The behavior it tells us about	How?
$f(x)$	Points on the graph	Plug in x into f(x), find corresponding y-value to get (x,y)
		$f'(x) > 0$
$f''(x)$	The function is Concave down	
	The function is decreasing	

Bonus:

1. Complete the following rules:

(a) $\frac{d}{dx}(f(x) \cdot g(x)) =$ _____ (b) $\frac{d}{dx}\left(\frac{f(x)}{g(x)}\right) =$ _____

(c) $\frac{d}{dx}f(g(x)) =$ _____ (d) $\frac{d}{dx}(f(x) \pm g(x)) =$ _____