

Name: _____

Math 211 Quiz 6

Section: 302 303

Mar 7, 2012

Calculators are not allowed in this quiz.

1. Find the second derivative of the given function and simplify your answer.

a. $f(x) = (3x + 1)^5$ b. $f(x) = \sqrt{1 + x^2}$

2. Estimate how much the function $f(x) = x^2 - 3x + 5$ will change as x increases from 5 to 5.3.

3. Find $\frac{dy}{dx}$ by implicit differentiation and simplify your answer.

a. $x^3 - y^2 = 5$ b. $(2x + y)^3 = x$

Bonus problem. Use implicit differentiation to find the second derivative $\frac{d^2y}{dx^2}$.

$$x^2 + y^2 = 1$$