MATH 20C: FUNDAMENTALS OF CALCULUS II
QUIZ #6

Name:

Please complete the following problem(s) in the space provided. You may use an approved calculator. You will have 15 minutes to complete the quiz.

Please include all relevant intermediate calculations and explain your work when appropriate.

Problem 1. Solve the differential equation $\dfrac{dy}{dx} = 3x^2y$ subject to the initial condition $y = 2$ when $x = 0$.

Problem 2.

(a) If $f(x, y) = \dfrac{x^2 - y^2}{x^2 + y^2 + 1}$, compute $f(0, 0)$ and $f(a, -1)$.

(b) Is the function $f(x, y, z) = x - 10000y - 0.5z + xyz$ a linear function?

(c) Find the distance between the points $(3, 2)$ and $(5, -3)$.