MATH 14 LAB 3B3 Fall 2011
Lab Quiz 5 Name: _____

Show all work clearly and in order, and circle your final answers.
Justify your answers algebraically whenever possible.

1. (*2 points*) True or false?
(a) If f is a differentiable function then $\frac{d}{dx}[f(g(x)] = f'(g(x))g'(x)$ for all functions $g(x)$.

(b) If I differentiate both sides of the equation $x^2 + y^2 = 5$ implicitly with respect to y (i.e. take $\frac{d}{dy}$ of both sides), then the following equation results: $2x\frac{dx}{dy} + 2y = 0$.

2. (*2 points*) Differentiate: $f(x) = \sqrt{\sin(x^3)}$.

3. (*2 points*) Differentiate implicitly (with respect to x):

$$(x^2 + y^2 - 1)^3 = x^2y^3.$$

Note: Interesting observation! The graph of the function in Problem 3 looks like this: