

Math 150A, Section 2, Spring 2007
Homework Assignment 3

Name:

Show your work. No work, no credit.

1. Differentiate the functions $f(x) = \sec(\cot^2(4x))$ and $g(x) = \sqrt[3]{x - \sqrt{x}} + \csc(x^2)$.

2. Find the slope of the tangent line to the curve $2(x^2 + y^2)^2 = 25(x^2 - y^2)$ at the point $(3, 1)$.

3. Differentiate the function $f(x) = (3x - 4)^{-2/3}(2x - 3)^4$ and simplify, leaving no negative exponents and expressing the derivative in terms of its factors.

4. Find $\frac{dy}{dx}$ by implicit differentiation, when $\sqrt{x+y} = 4 + x^2y^3$.

5. Find the value of c which makes the following curves orthogonal at $(1, 1)$:

$$(C_1) \quad x^2 + 3y^2 = 4,$$

$$(C_2) \quad cy^2 - x^2 = -2/3.$$

Pledged

Honor code: I have neither given nor received help on this assignment.