

Math 150A, Fall 2007, Section 18  
Quiz 6

**Name:**

Show your work. No work, no credit.

1. Assume that  $x$  and  $y$  are differentiable functions of  $t$  and that they satisfy  $x^3y^2 = 432$ . Find  $\frac{dx}{dt}$  when  $x = 3$ ,  $y = 4$ , and  $\frac{dy}{dt} = 2$ .

2. Find the first and second derivative of the function  $f(x) = \sqrt[5]{(x^2 + 3)^2}$ .

3. 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 quiz.