Math 161 Quiz 3 10/03/13 25 Minutes

Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

Show all work to receive full credit. Cross out all work you don't want graded. Circle your final answer.

1. For what values of x does the function  $T(x) = \frac{(x-1)(x-4)}{(x-2)(x-3)}$  have horizontal tangent lines?

2. Find the derivative of the following functions

(a) 
$$y(t) = \sin^2\left(\frac{t^3+1}{t^2+2t}\right)$$

(b) 
$$R(x) = \sqrt[5]{\frac{x^2}{\tan x}}$$

3. Find the equation of the tangent line to the curve  $y = \frac{x^3}{\sqrt{x^4 + 1}}$  at x = 1.