Name: _____

Math 200 Calculus I (Bueler) 22 March 2006

Quiz # 6

Total of 25 points.

1. (*5 pts*) Find dy/dx by implicit differentiation:

$x^2 \ln y + x \sin y = 4$

2. (a) (*5 pts*) Find the velocity and acceleration if

$$s(t) = 2t^3 - 15t^2 + 36t + 2, \qquad t \geq 0$$

(b) (*5 pts*) For the equation of motion in the first part, find the acceleration at the instants when the velocity is zero.

3. (*5 pts*) Use implicit differentiation to find the equation of the tangent line at the given point:

$x^2 + xy + y^2 = 3, \qquad (1, 1) \qquad$ (an ellipse)

4. (*5 pts*) Find the derivative:

$$f(t) = \tan^{-1}(2t + 1)$$