Math 201e, Fall 2005
Quiz 6

Name:

You have 25 minutes to do this quiz. You may not use any books or notes while you do the quiz nor discuss the quiz with anyone. You may use a calculator. There are two pages to the quiz.

1. For a point whose polar coordinates are \((r = 2, \theta = \pi/4)\), give the rectangular coordinates \((x, y)\).

2. For the parametric curve \(r(t) = (x(t) = 2t, y(t) = 3t + 1, z(t) = t^2)\)
   
a. find the point \(r(1)\).
   
b. find the tangent vector (velocity vector) \(r'(1)\).
   
c. Give the equation of the tangent line to the curve \(r(t)\) that passes through the point \(r(1)\).
3. For \( f(x, y, z) = x^2y^3z^4 \) and \( x(t) = 2t + 3, y(t) = t^2, z(t) = t - 2 \).

Write out the general expression for \( \frac{\partial f}{\partial t} \) and then calculate \( \frac{\partial f}{\partial t} \) when \( t = 1 \).

Self evaluation: (Circle) Do you feel your performance on the quiz was

\( Green \quad Yellow \quad Red \)