Name.....

UID.....

Math 1210-2

Quiz 2

August 31, 2007

Show all work for complete credit! Every question below has something to do with the graph $y = x^2 + 3x$.

1) Use the limit definition of derivative to compute f′(x), for $f(x) = x^2 + 3x$.

(3 points)

2a) What is the slope of the parabola $y = x^2 + 3x$ at the point **P** = (-2,-2)?

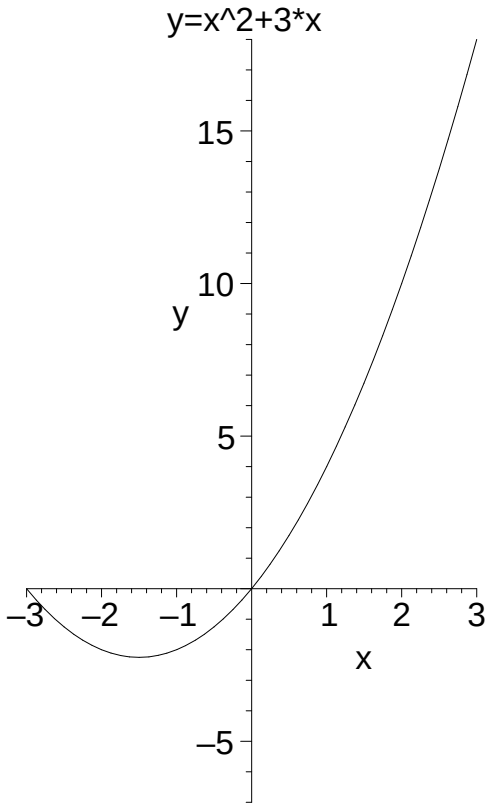
(1 point)

2b) What is the slope-intercept equation of the line through **P**, with the slope you computed in (2a)? (This line is the tangent line to the parabola at **P**.)

(2 points)

2c) Draw the tangent line from (2b) onto the picture below, so that it passes through **P** and has the correct y-intercept. Your slope may not "look" correct, because the scales are different in the x and y-directions.

(1 point)



3a) Sketch the region under the graph of $y = x^2 + 3x$ (and above the x-axis), between x=0 and x=3, in the picture above.

(1 point)

3b) Find the area of the region you sketched in (3a).

(2 points)