Math 2554 Quiz 6: § 3.5-3.7 **Name:** _____
Tues 7 Oct 2014

You have 20 minutes to complete this quiz. Eyes on your own paper and good luck!

1. **Definitions/Concepts.** *(none this week)*
2. **Questions/Problems.**
   (a) Find an equation of the line tangent to the curve $x^2 + xy - y^3 = 7$ at the point $(3, 2)$.

   (b) **A stone thrown vertically** Suppose a stone is thrown vertically upward from the edge of a cliff with an initial velocity of 64 ft/s from a height of 32 ft above the ground. The height s (in feet) of the stone above the ground t seconds after it is thrown is

   $$s = -16t^2 + 64t + 32.$$

   (i) Determine the velocity v of the stone after t seconds.

MORE ON THE NEXT PAGE →

(ii) When does the stone reach its highest point?

(iii) What is the height of the stone at the highest point?

(iv) When does the stone strike the ground?

(v) With what velocity does the stone strike the ground?

3. **Computations/Algebra.** Use the Chain Rule to differentiate

(a) $(6x^3 + 3x + 1)^{10}$

(b) e^{x^3}