

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

Math 105

Quiz #5

October 21, 2013

- This is a closed-book quiz. No books, notes, calculators, cell phones, communication devices of any sort, or webpages, or other aids are permitted.
  - Please *show* all of your work and *justify* all of your answers.
- 1.** [5 Points] Prove that the function  $y = |x - 7|$  is **not** differentiable at  $x = 7$ .

- 2.** [5 Points] Compute the equation of the line that is tangent to the curve  $y = (3x^2 + 5)(2 - 4x)$  at the point where  $x = 1$ .

**3.** [10 Points] Consider the function  $f(x) = \frac{7x+3}{2-4x}$ . Compute the derivative  $f'(x)$  in two different ways:

(a) First compute the derivative using the *limit definition of the derivative*.

(b) Second compute the derivative using the Quotient Rule.