MATH 1513 – College Algebra
Quiz 3 – Due Tuesday, 20 September 2011

Instructions: Print out this page and turn it in at the beginning of class on Tuesday. Show all work. Answers with no work shown will receive no credit.

1. Consider the function $f(x) = (x - 1)^2$.
   a.) Sketch a graph of this function. Be sure to label any x- or y-intercepts.

   b.) On what interval of the real line is this function increasing? Decreasing?

   c.) Does this function have any relative minima or relative maxima? If so, list the coordinates at which they occur.

2. Consider the piece-wise defined function
$$f(x) = \begin{cases} 2x - 1, & for\ x < 3 \\ -x^2, & for\ x \geq 3 \end{cases}$$
   a.) What is the domain of this function?

   b.) What is the value of $f(-1)$? $f(1)$? $f(3)$? $f(5)$?

3. In class we defined the Greatest Integer Function (also called the Floor Function),
   $\lfloor x \rfloor$ = the greatest integer less than or equal to x.
There is also a Least Integer Function (also called the Ceiling Function),
   $\lceil x \rceil$ = the least integer greater than or equal to x.
Sketch a graph of the Least Integer Function on the interval $[-3, 3]$.

Bonus: Problem #40 from Ch 2.1, Pg 177.