Quiz 3E

Show *all* your work. No credit is given without reasonable supporting work. There are *two* sides to this quiz.

1. Consider the function $f(x) = 2(x-1)^2 + 1$.

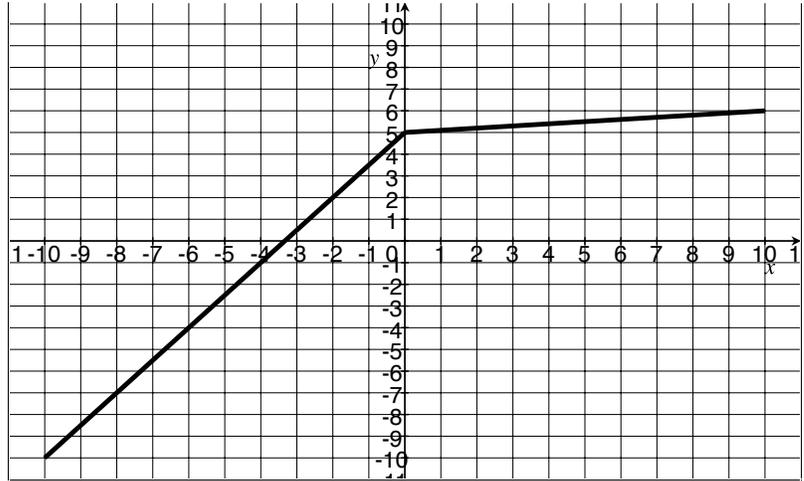   (a) [1] (Quad Wks) Find the coordinates of the vertex and determine if it is a minimum or maximum.

   (b) [2] (§3.4 #67) Find the roots of f.

2. Evaluate the expressions:

   (a) [1] (WebHW6 #4) $\left(\dfrac{2}{3} + 6i\right)\left(\dfrac{1}{6} + 18i\right)$

   (b) [2] (§3.4 #37) $\dfrac{10i}{1-2i}$

3. (WebHW6 #12) Let n be the function defined by the graph to the right:

(a) [1] (WebHW6 #5) Does n have an inverse function? Why or why not?

(b) [1] (WebHW6 #6) Find $n^{-1}(6)$, if possible.

4. [2] (WebHW5 #9) The effectiveness of a television commercial depends on how many times a viewer watches it. After some experiments an advertising agency found that if the effectiveness E is measured on a scale of 0 to 10, then $E(n) = \frac{2}{3}n - \frac{1}{25}n^2$ where n is the number of times a viewer watches a given commercial. For a commercial to have maximum effectiveness, how many times should a viewer watch it?

Note: guess and check is *not* the way to get credit for this problem.