

Quiz 1

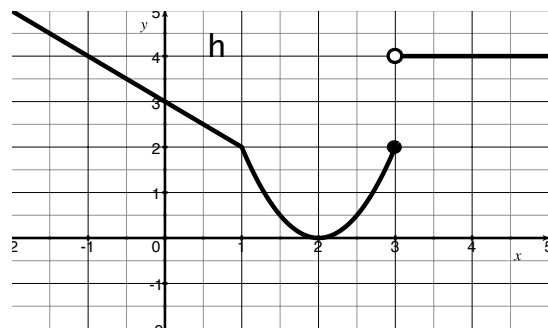
Should be simpler
 than 124 Jan T, Th
 make up quiz

This is a two-stage quiz. During the first stage, use your knowledge & calculator. You have 15 min. In the second stage, you are now welcome to use your books, notes, and students in the class to retake the same quiz. You have the remainder of the quiz time to write one solution (with everyone's name on it!!!) to be turned in for the group.

Show *all* your work. Reasonable supporting work must be shown for any partial credit.

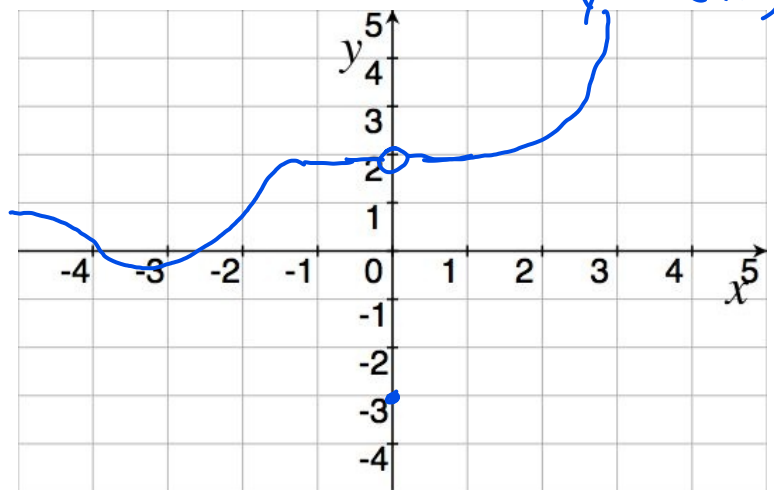
1. [4] Use the graph of h below to find the limits (either numerically, graphically, or algebraically), if they exist:

$h(3) + \lim_{x \rightarrow 3^+} h(x) = 2 + 4 = 6$
 $\lim_{x \rightarrow 0} [4h(x)] = 4(h(0)) = 4(3) = 12$



2. [4] Sketch the graph of a function α that satisfies *all* of the following.

- (a) $\alpha(0) = -3$
- (b) $\lim_{x \rightarrow 0} \alpha(x) = 2$
- (c) $\lim_{x \rightarrow 3^-} \alpha(x) = \infty$



3. [2] The deck of a bridge is suspended 235 feet above a river. If a pebble falls off the side of the bridge, the height, in feet, of the pebble above the water surface after t seconds is given by $y = 235 - 16t^2$. Find the average velocity (in ft/sec) of the pebble between 3 seconds and 3.1 seconds.

$V_{3 \text{ sec}} \Rightarrow y = 235 - 16(3)^2 = 91 \text{ ft}$
 $\frac{91 \text{ ft}}{3 \text{ sec}} = 30.3 \text{ ft/sec}$
 $V_{3.1 \text{ sec}} \Rightarrow y = 235 - 16(3.1)^2 = 81.24 \text{ ft}$
 $\frac{81.24 \text{ ft}}{3.1 \text{ sec}} = 26.206 \text{ ft/sec}$
 $\text{velocity} = \text{ft/sec}$
 $\text{avg V.} = \frac{V_{3 \text{ sec}} + V_{3.1 \text{ sec}}}{2} = \frac{30.3 + 26.206}{2} = 28.253 \text{ ft/sec}$
 $F = 28.253 \text{ ft/sec}$