TMATH 124 MW: Quiz 2

Show *all* your work (numerically, algebraically, or geometrically) for each and simplify. No credit is given without supporting work.

1. [2] (§2.5 #50) TRUE/FALSE: Circle T in each of the following cases if the statement is *always* true. Otherwise, circle F. Let f be a function.

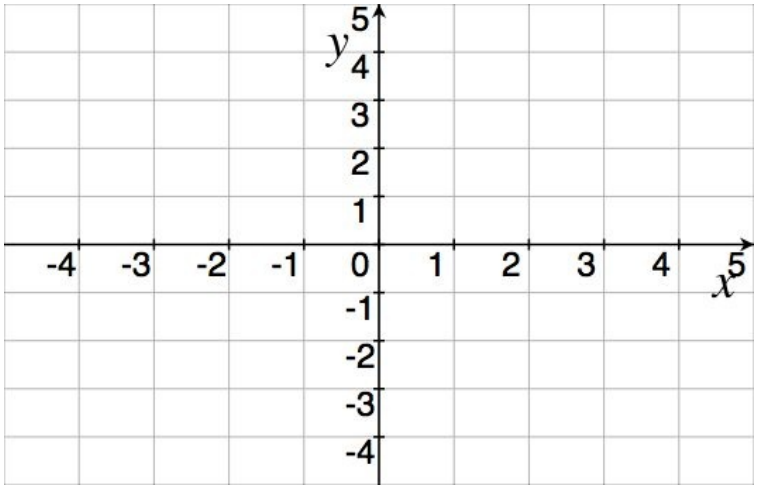
   T F If f is continuous, $f(0) = -5$, and $f(4) = 4$, then $-5 \leq f(2) \leq 4$.

   T F If f is continuous, $f(0) = -5$, and $f(4) = 4$, then f has a root between $x = 0$ and $x = 4$.

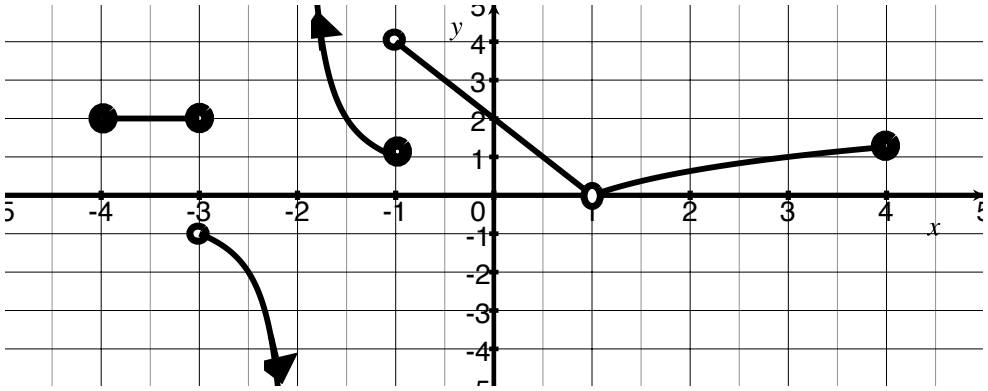
2. [3] (Con't Wks #6) Sketch a graph of a function α that satisfies *all* of the following:

   (a) $\lim_{x \to 2} \alpha(x) = \infty$

   (b) α is not continuous at $x = 1$



3. [3] (Lecture 1/13) For the function f whose graph is given, estimate the value of each quantity, if it exists. Note there are solid dots at $(-3, 2)$, $(-1, 1)$, and $(4, 1.2)$.



$f(0)$ $f'(0)$ $\frac{d}{dx} f|_{x=1}$

4. (WebHW4 #10) Find:

$$\lim_{t \to \infty} \frac{5x - 9}{2x + 2}$$