TMATH 124 UH: 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, $f(1) = 5$, and $f(4) = -4$, then $-4 \leq f(3) \leq 5$.

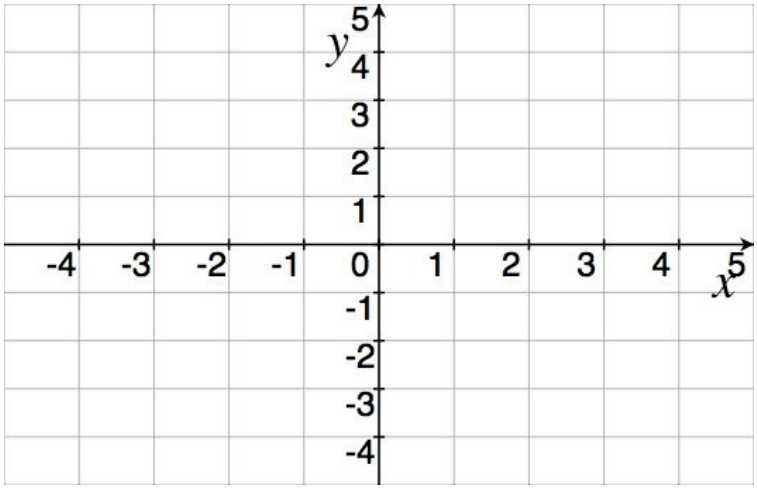
   T F If f is continuous, $f(1) = 5$, and $f(4) = -4$, then f has a zero between $x = 0$ and $x = 4$.

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

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

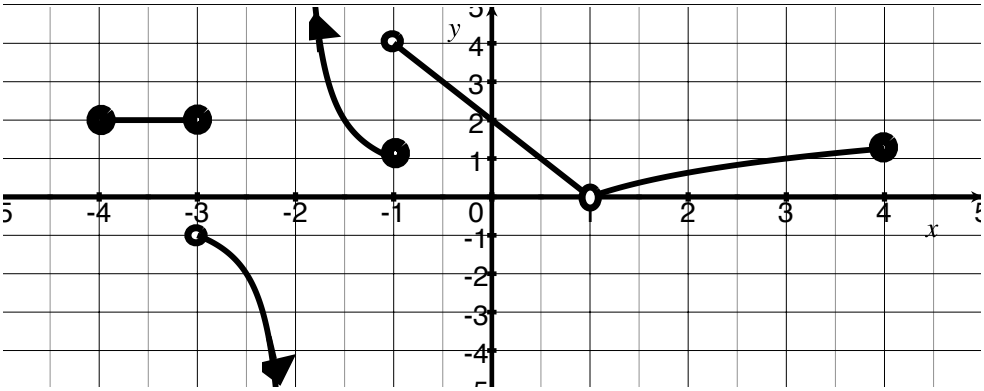
   (b) $\lim_{x \to +\infty} \alpha(x) = 0$

   (c) α is not continuous at $x = 0$



3. [2] (WebHW3 #4) Find the limit $\lim_{x \to 5} \dfrac{x^2 - 7x + 6}{x - 5}$

4. [3] (WebHW3 #1) 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 $(4, 1.2)$.



$\lim_{x \to 1} f(x)$ $\qquad\qquad$ $\lim_{x \to 0} \dfrac{2f(x)}{3 + f(x)}$