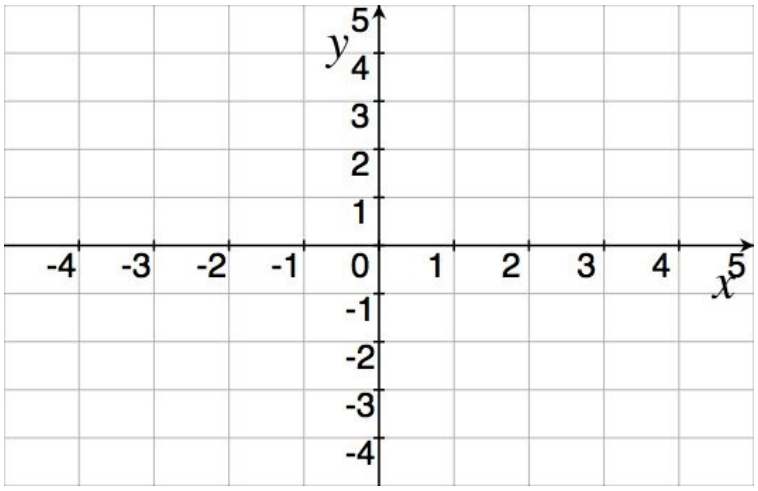
TMATH 124 Quiz 1

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

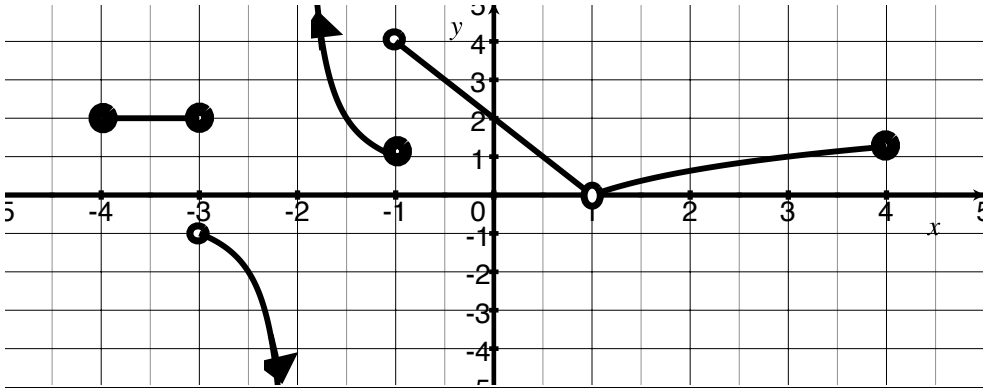
1. (WebHW2 #5) Let $f(x) = \begin{cases} (x+2)^2 & \text{if } x \leq 0 \\ 4\cos(x) & \text{if } 0 < x \end{cases}$

   (a) [2] *Carefully* graph f on the axis provided



   (b) [1] Determine the values of c for which $\lim_{x \to c} f(x)$ exists.

2. [2] (§2.2 #26) For the function f whose graph is given, estimate the value of each quantity, if it exists.



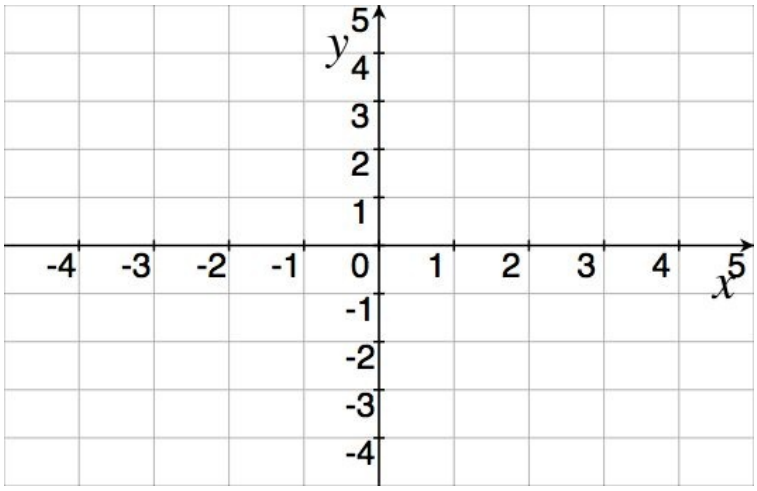
$\lim_{x \to 1} f(x)$ $\lim_{x \to -3^+} f(x)$

3. [3] (Limit Activity #3) Sketch a graph of a function α that satisfies *all* of the following:

   (a) $\lim_{x \to -1} \alpha(x) = 3$

   (b) $\lim_{x \to 2^-} \alpha(x) = -3$

   (c) $\alpha(2) = -1$



4. [2] (Quiz1 Winter2016) Write the algebraic rule for the function α you created in problem 3.