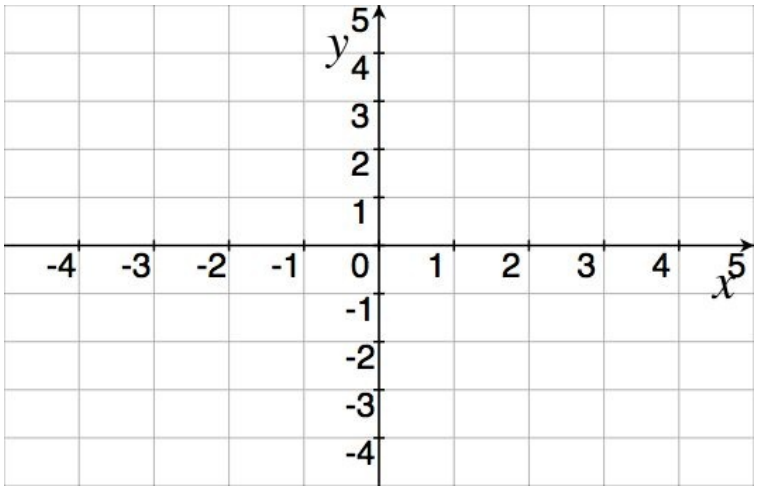
TMATH 124: Quiz 1

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

1. (§2.2 #12) Let $f(x) = \begin{cases} -x+1 & \text{if } x < 1 \\ \log_3(x+1) & \text{if } 1 < x \end{cases}$

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

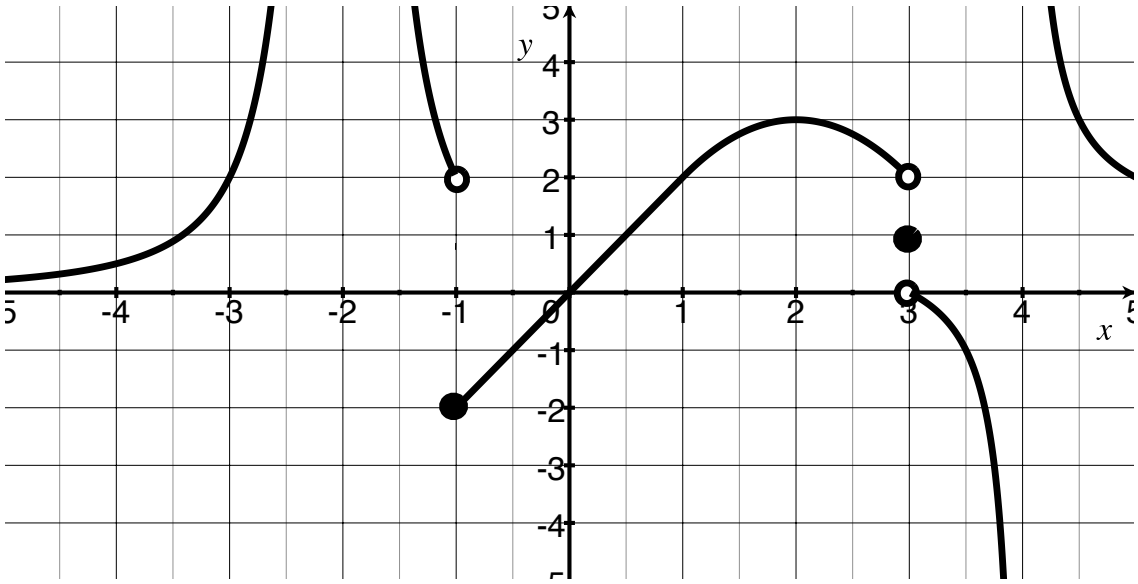


   (b) [1]Determine the values of c for which $\lim_{x \to c} f(x)$ exists.

2. [2] (WebHW3 #9) Find:

$$\lim_{h \to 0} \frac{(3+h)^{-1} - 3^{-1}}{h}$$

3. [5] (limit laws wks #2) For the function f whose graph is given, estimate the value of each quantity, if it exists.



$\lim_{x \to 1} f(x)$

$\lim_{x \to -2} f(x)$

$f(3)$

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

$\lim_{x \to -3} \sqrt{8f(x)}$