

# TMATH 124 Quiz 2

Show *all* your work (numerically, algebraically, or geometrically) for each and simplify. Supporting work is needed to earn credit. There are two sides of this quiz.

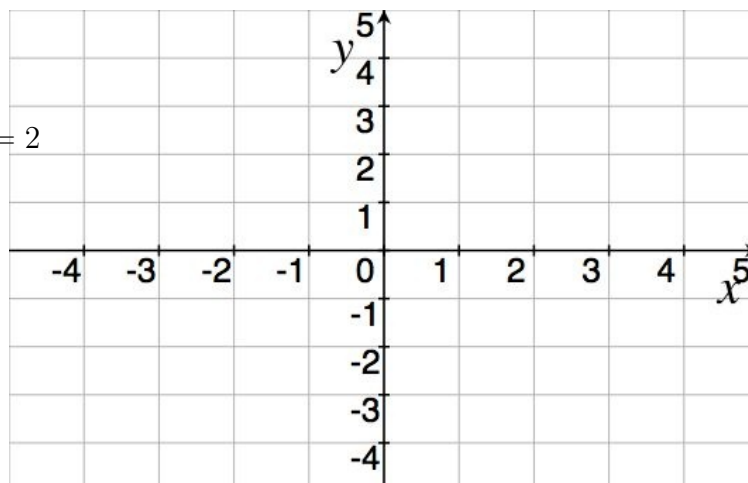
- [2] (§2.4 #114) Let  $f(x) = 2[[x]]$  where  $[[x]]$  is the greatest integer function. Find all  $x$  where  $f$  is not continuous. Justify your answer.

- [3] (Continuous Activity #5) Sketch a graph of a function  $\alpha$  that satisfies *all* of the following:

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

(b) is not continuous at  $x = 2$

(c)  $\lim_{x \rightarrow \infty} \alpha(x) = 1$



3. [3] (WebHW4 #10) Let  $g(x) = 4x - 2$ . Find  $\lim_{\Delta x \rightarrow 0} \frac{g(3 + \Delta x) - g(3)}{\Delta x}$ .

4. [2] (WebHW5 #16) The graph to the right tracks the population of bacteria  $P$  as a function of days.

(a) Find  $\lim_{x \rightarrow \infty} P(x)$ .

(b) Interpret what your answer above means in terms of bacteria.

