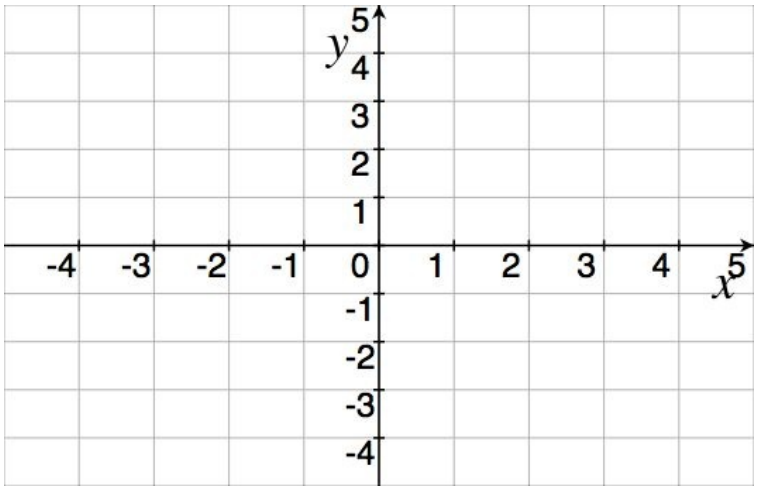
TMATH 124 Quiz 2

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

1. (con't wks #1) Consider the piecewise-defined function f defined below:

$$f(x) = \begin{cases} \dfrac{(x+2)(x+3)}{x+2} & \text{if } x \leq 1 \\ -\log_3 x & \text{if } 1 < x \end{cases}$$



   (a) [2] Draw the graph of f on the axis provided.

   (b) [2] Where is f continuous? Explain why.

2. [3] (WebHW5 #2 & inf limit wks) Determine the following, if they exist. Be sure to justify your work.

$$\lim_{x\to\infty} \frac{8x-5}{2x+6} \qquad \lim_{x\to\infty} \left(x - x^2\right)$$

3. (§2.7 #3) Consider the function $f(x) = 6x - x^2$.

   (a) [2] Find the slope of the line tangent to f when $x = 1$.

   (b) [1] Find the equation of the line tangent to f when $x = 1$.