

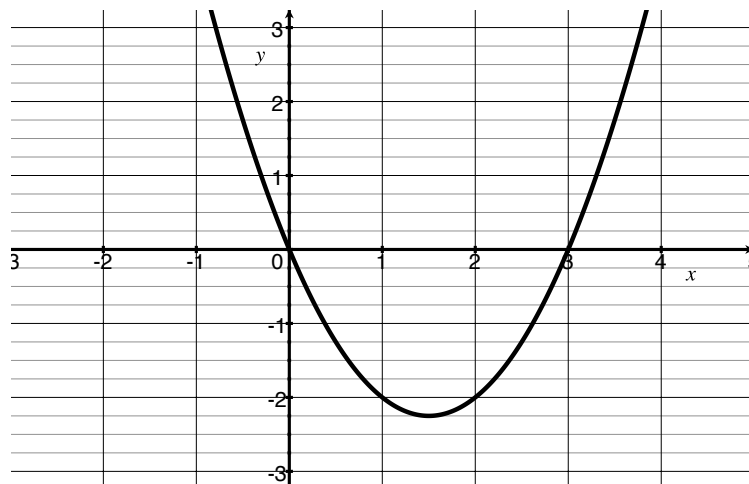
# TMATH 124: Quiz 2

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

1. (WebHW5 #3) Let  $f(x) = 7x - x^2$  whose graph is shown to the right.

(a) [1] Estimate  $f'(1)$ .

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



(c) [2] Find the equation of the line tangent to the graph of  $f$  when  $x = 1$ .

2. [1] (inf wks) Let  $g(x) = \frac{x+2}{6x-4}$ . Find  $\lim_{x \rightarrow \infty} g(x)$ .

3. [4] (§2.7 #21) Sketch a graph of a function  $\alpha$  that satisfies *all* of the following:

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

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

$$\alpha'(1) = 0$$

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

