

(1) Compute the following limits:

a. $\lim_{x \rightarrow 4^+} \frac{1}{2x-8} =$

b. $\lim_{x \rightarrow 4^-} \frac{1}{2x-8} =$

c. $\lim_{x \rightarrow 4} \frac{1}{2x-8} =$

d. $\lim_{x \rightarrow 1} \frac{x+1}{x-1} =$

e. $\lim_{x \rightarrow -\frac{1}{2}^+} \frac{x^2-2x-3}{2x^2-3x-2} =$

f. $\lim_{x \rightarrow -\frac{1}{2}^-} \frac{x^2-2x-3}{2x^2-3x-2} =$

g. $\lim_{x \rightarrow -\frac{1}{2}} \frac{x^2-2x-3}{2x^2-3x-2} =$

h. $\lim_{x \rightarrow 2} \frac{x^2-3x+2}{x^2-4x+4} =$

(2) For each function below, use this definition of the derivative function to compute $f'(x)$

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

a. $f(x) = 12x + 1$

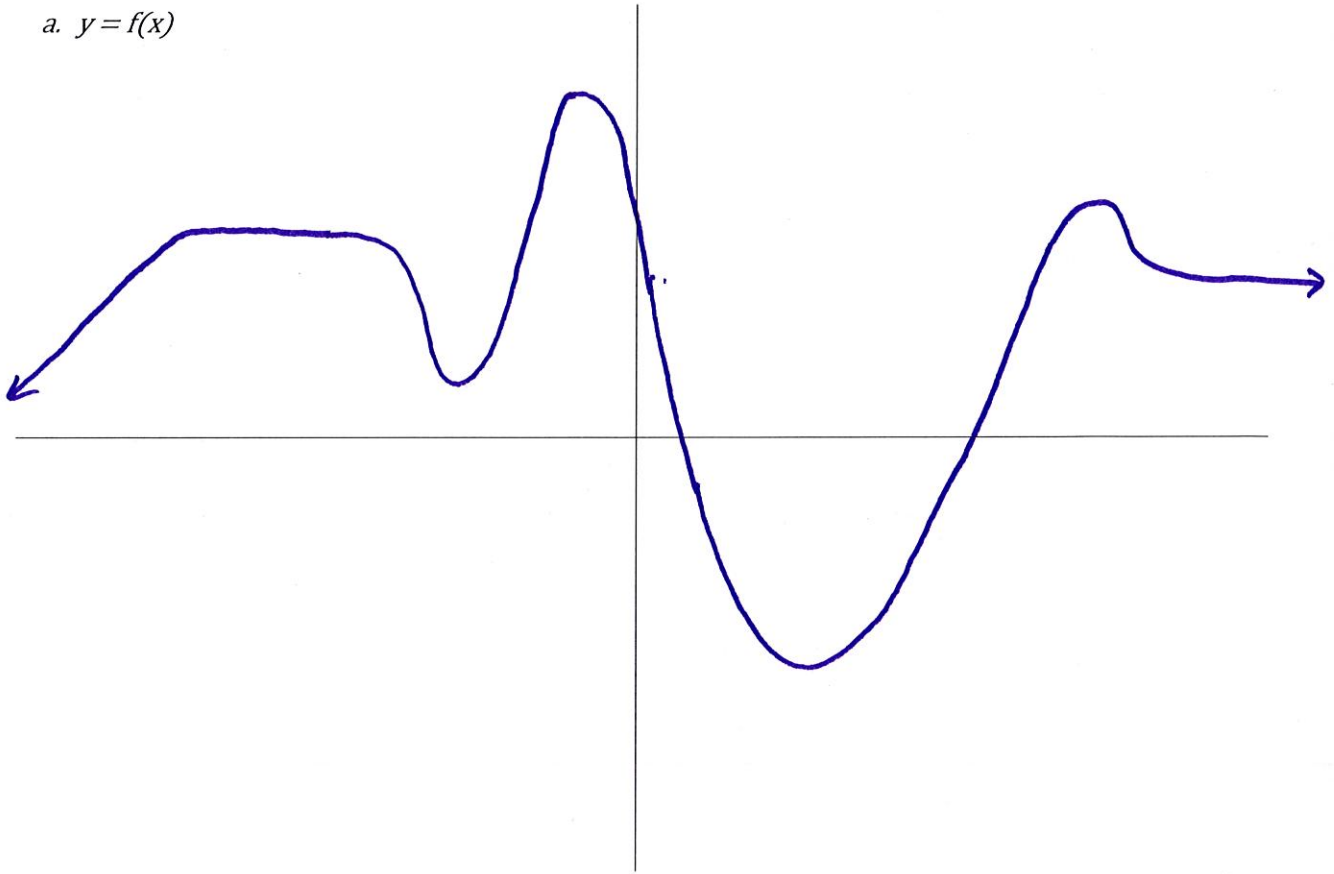
b. $f(x) = \frac{2}{x}$

c. $f(x) = 3x^2 - x$

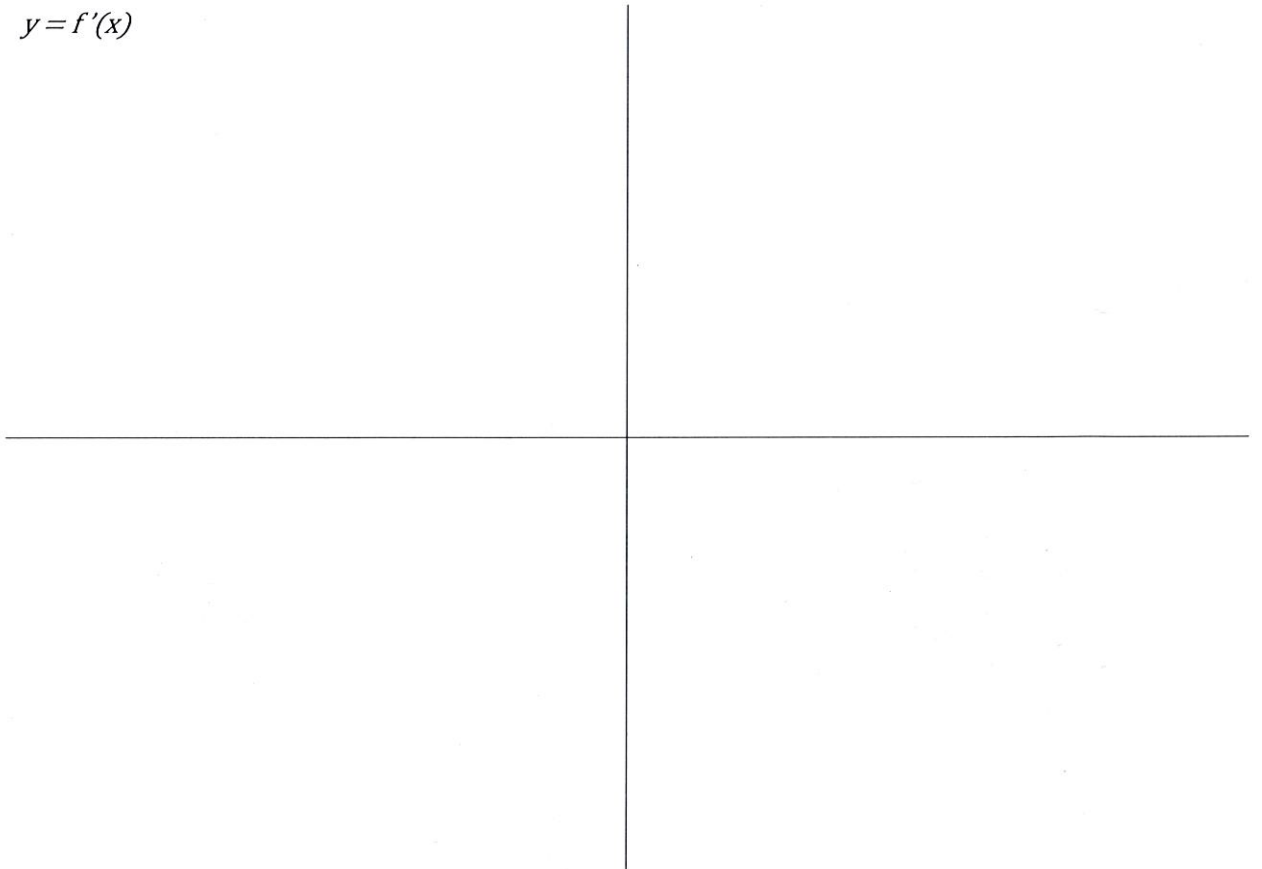
d. $f(x) = 3 - \sqrt{x+2}$

(3) For the graphs below, sketch the graph of the derivative.

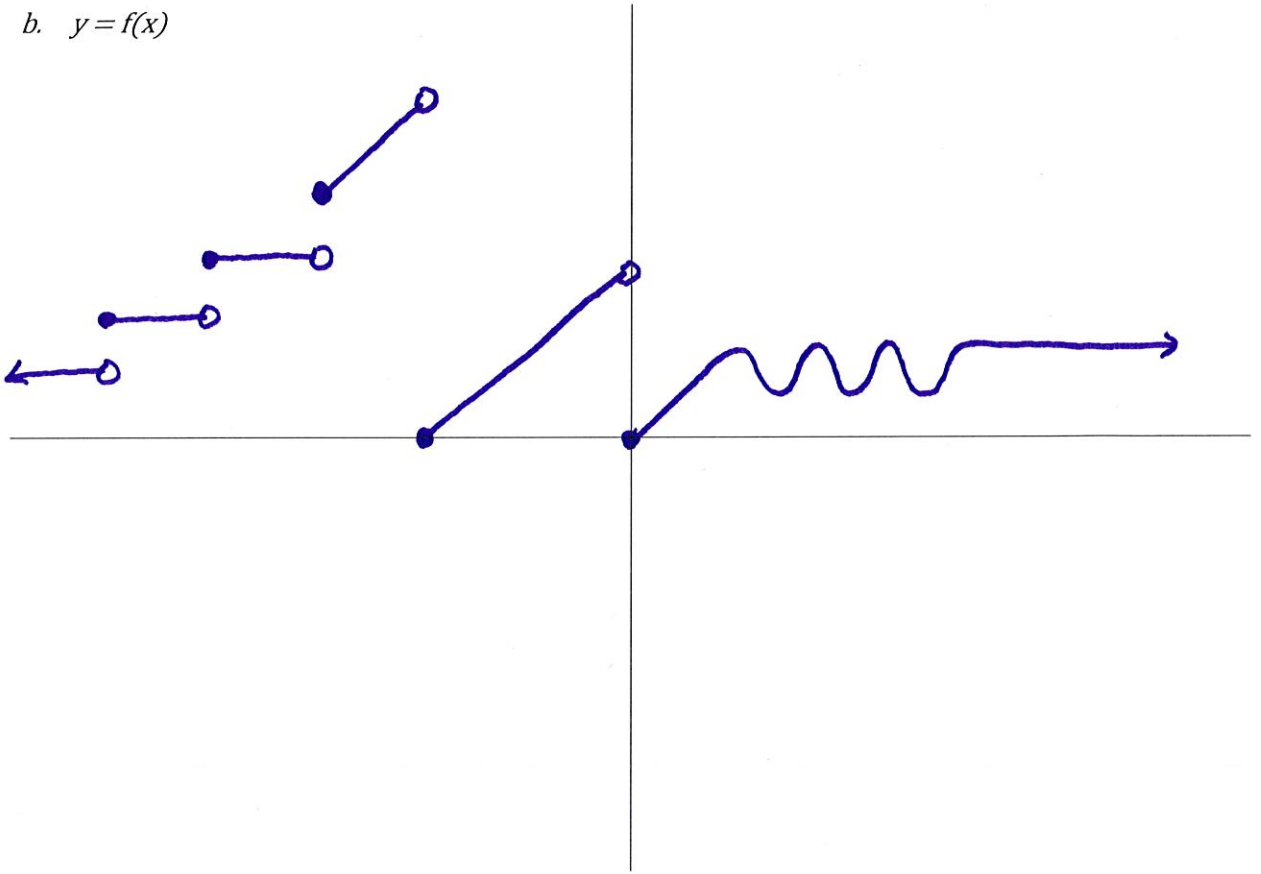
a. $y = f(x)$



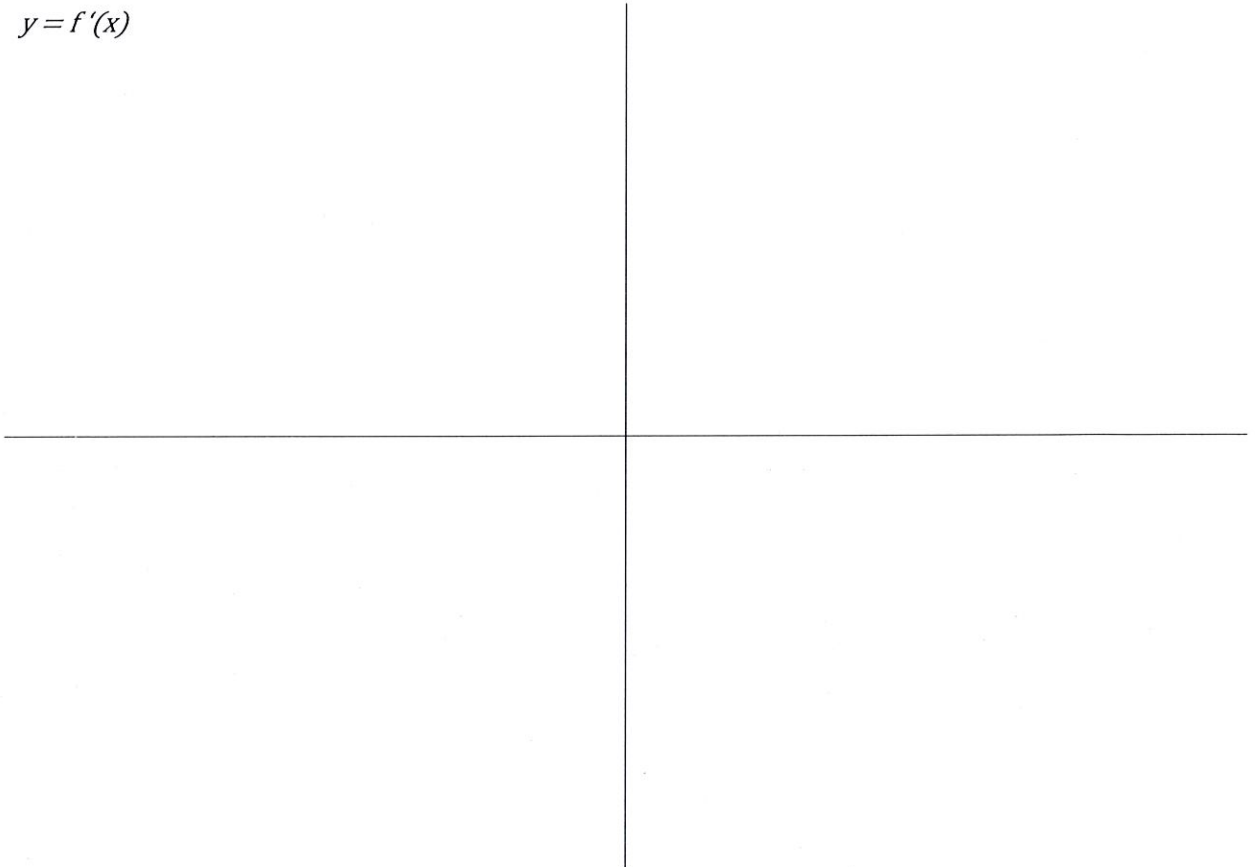
$y = f'(x)$



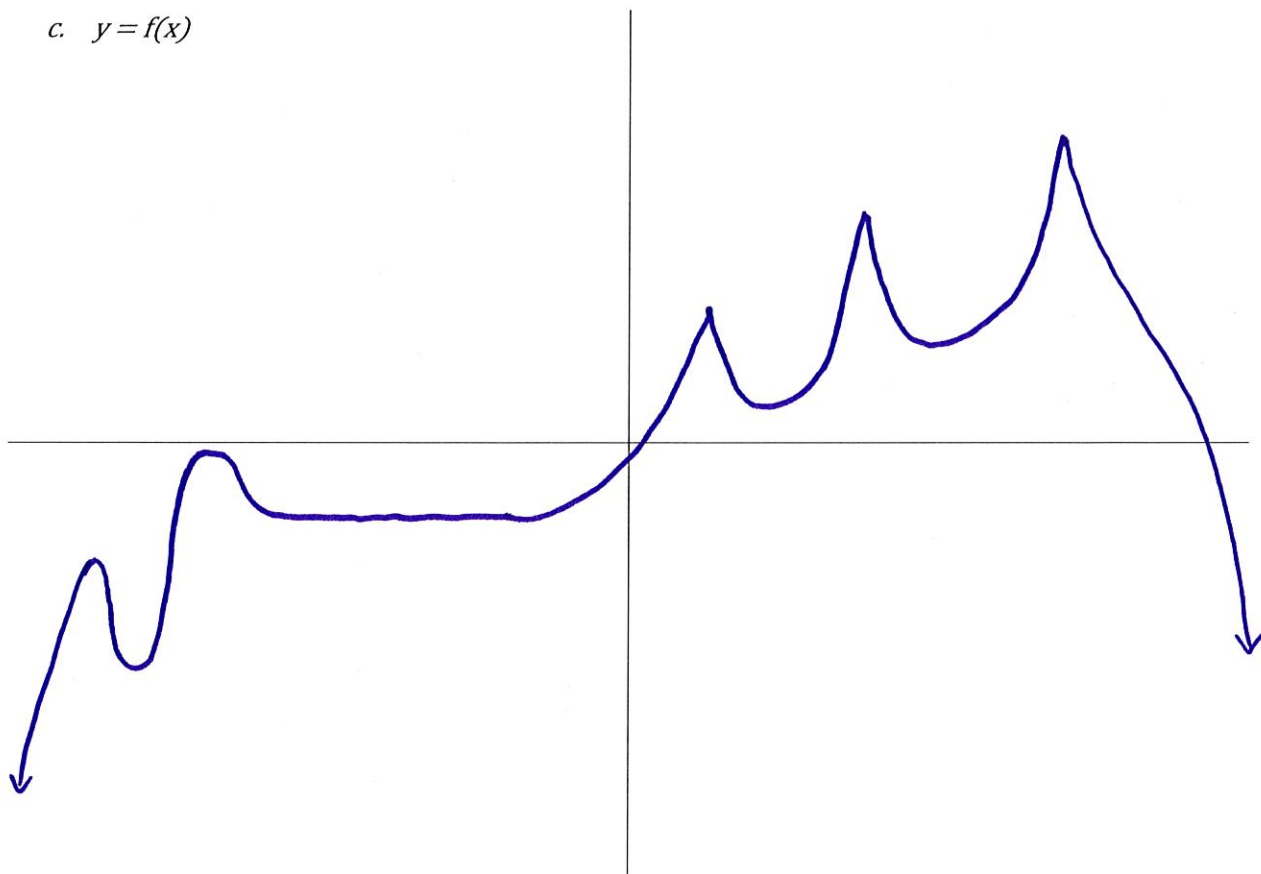
b. $y=f(x)$



$y=f'(x)$



c. $y = f(x)$



$y = f'(x)$

