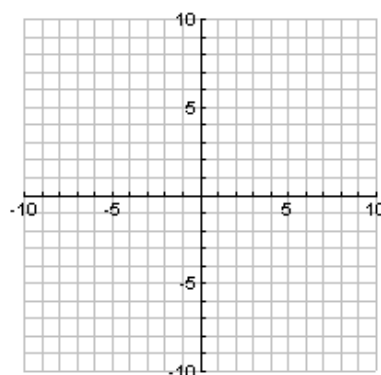
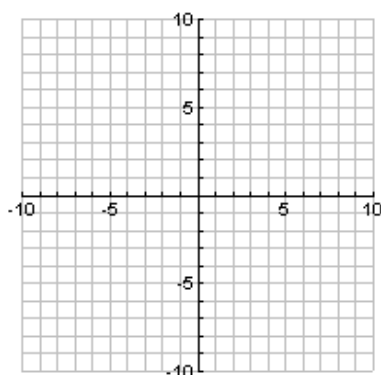
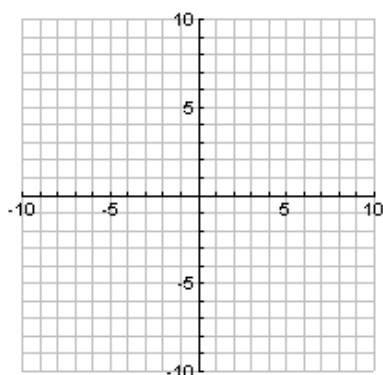


What is a limit?

Notation:

Graph  $f(x) = x + 2$ ,  $g(x) = \frac{x^2 + x - 2}{x - 1}$ , and  $h(x) = \begin{cases} \frac{x^2 + x - 2}{x - 1}, & x \neq 1 \\ 2, & x = 1 \end{cases}$



Find:

$f(0)$

$g(0)$

$h(0)$

$f(1)$

$g(1)$

$h(1)$

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

$\lim_{x \rightarrow 0} g(x)$

$\lim_{x \rightarrow 0} h(x)$

$\lim_{x \rightarrow -\infty} f(x)$

$\lim_{x \rightarrow 1} g(x)$

$\lim_{x \rightarrow 1} h(x)$

$\lim_{x \rightarrow \infty} f(x)$

$\lim_{x \rightarrow -\infty} g(x)$

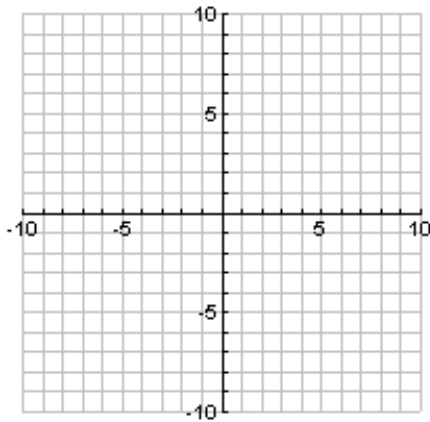
$\lim_{x \rightarrow -\infty} h(x)$

$\lim_{x \rightarrow \infty} g(x)$

$\lim_{x \rightarrow \infty} h(x)$

$$f(x) = \begin{cases} \frac{6}{x}, & x < 0 \\ 6, & x \geq 0 \end{cases}$$

Graph



Find:

$f(-2)$

$f(0)$

$f(3)$

$\lim_{x \rightarrow -2^-} f(x)$

$\lim_{x \rightarrow -2^+} f(x)$

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

$\lim_{x \rightarrow 0^-} f(x)$

$\lim_{x \rightarrow 0^+} f(x)$

$\lim_{x \rightarrow 0} f(x)$

$\lim_{x \rightarrow 3^-} f(x)$

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

$\lim_{x \rightarrow 3} f(x)$

$\lim_{x \rightarrow -\infty} f(x)$

$\lim_{x \rightarrow \infty} f(x)$

Example: Sec. 2.1 #57

