

2.1a Limits

Write a sentence explaining the meaning of the following equation to someone not in calculus: $\lim_{h \rightarrow 0} (4 + h) = 4$

Estimate the following limits using either: graphical, numerical, or symbolic methods.

$$\lim_{x \rightarrow 1} 5 =$$

$$\lim_{x \rightarrow 1} (x + 1) =$$

$$\lim_{x \rightarrow 5} 3(x + 1) =$$

Aug 29-9:01 PM

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

$$\lim_{x \rightarrow -1} \frac{5x^2}{3x + 1} =$$

Aug 29-9:29 PM

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

$$\lim_{x \rightarrow 1} \begin{cases} \frac{x^2 - 1}{x - 1}, & x \neq 1 \\ 2 & x = 1 \end{cases}$$

Aug 29-9:07 PM

$$\lim_{x \rightarrow 0} \frac{\sin x}{x} =$$

$$\lim_{x \rightarrow 0} \frac{\tan x}{x} =$$

Aug 29-9:09 PM

One-sided limits

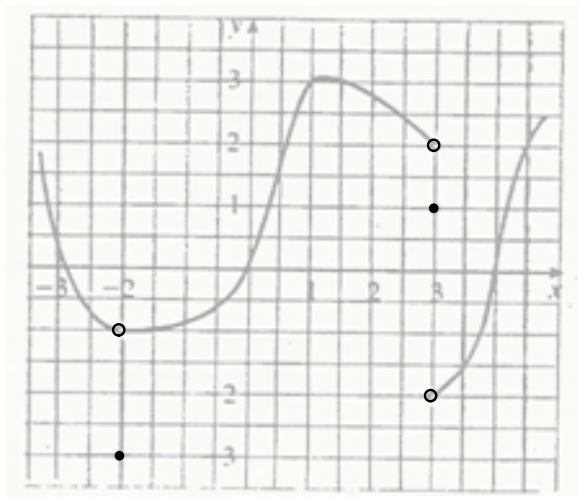
$$\lim_{x \rightarrow c^+} f(x)$$

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

$$\lim_{x \rightarrow c} f(x) = L \quad \text{iff} \quad \lim_{x \rightarrow c^+} f(x) = \lim_{x \rightarrow c^-} f(x) = L$$

the limit doesn't necessarily equal the function!!!

Aug 29-9:12 PM



(a) $\lim_{x \rightarrow 1} f(x) =$ (b) $\lim_{x \rightarrow 3^-} f(x) =$ (c) $\lim_{x \rightarrow 3^+} f(x) =$

(d) $\lim_{x \rightarrow 3} f(x) =$ (e) $f(3) =$ (f) $\lim_{x \rightarrow -2^-} f(x) =$

(g) $\lim_{x \rightarrow -2^+} f(x) =$ (h) $\lim_{x \rightarrow -2} f(x) =$ (i) $f(-2) =$

Aug 29-9:33 PM