Math 141 - Calculus Name___________________

Section 2.2 and 2.3 continued Video Worksheet

One-sided Limits

To have a limit L as x approaches c,

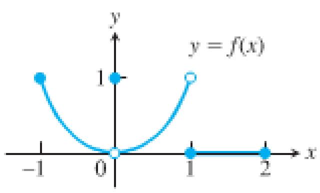
If f fails to have a two-sided limit at c,

A function f(x) has a limit as x approaches c iff

Theorem:

$$\lim_{h\to 0}\frac{\cos h-1}{h}=0$$

Proof:



True or False?

$$\lim_{x\to -1^+} f(x)=1$$

$$\lim_{x\to -0^-} f(x)=1$$

$$\lim_{x\to 0} f(x)\text{ exists}$$

$$\lim_{x\to 0} f(x)=1$$

$$\lim_{x\to 1} f(x)=1$$

$$\lim_{x\to -1^-} f(x)\text{ does not exist}$$

Try It:

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

$$\lim_{t\to 0}\frac{\sin(kt)}{t}=$$

$$\lim_{t\to 0}\frac{t}{\sin t}=$$

$$\lim_{h\to 0}\frac{h}{\sin(3h)}=$$

$$\lim_{x\to 0}6x^2(\cot x)(\csc(2x))=$$

$$\lim_{t\to 0}\frac{2t}{\tan t}=$$

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Section 2.2 and 2.3 continued Video Worksheet

$$\lim_{y \to 0} \frac{\sin(\sin h)}{\sin h} =$$

$$\lim_{y \to 0} \frac{\sin(3y)\cot(5y)}{y\cot(4y)} =$$

$$\lim_{x \to 0} \frac{x + x\cos x}{\sin x \cos x} =$$

Try It: $\lim_{\theta \to 0} \frac{\sin\sqrt{2}\theta}{\sqrt{2}\theta} =$