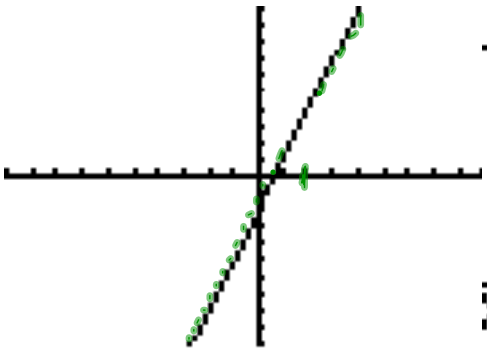
11-1 LIMITS

$\lim_{x \to c} f(x) = L$ as x approaches c from either side, the limit of the function is L.

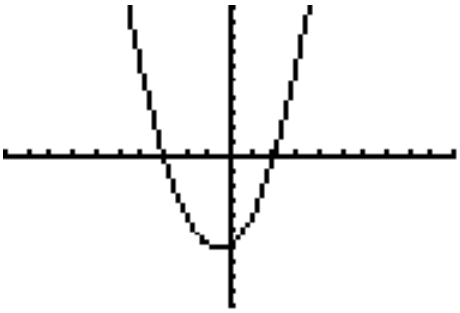
Ex 1 Find $\lim_{x \to 2}(3x - 2) = 4$



X	Y1
1.97	3.91
1.98	3.94
1.99	3.97
2	4
2.01	4.03
2.02	4.06
2.03	4.09

X=1.97

Ex 2 Find $\lim_{x\to -1}\left(x^2+x-6\right)$ = -6

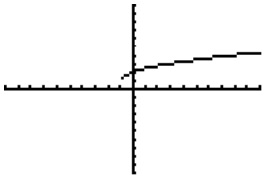


X	Y1
-1.03	-5.969
-1.02	-5.98
-1.01	-5.99
-1	-6
-.99	-6.01
-.98	-6.02
-.97	-6.029

X=-1.03

Ex 3 Find $\lim_{x\to 0}\left(\frac{x}{\sqrt{x+1}-1}\right)$ = 2

$\lim_{x\to 0}\left(\frac{0}{\sqrt{1}-1}\right)=\frac{0}{0}$



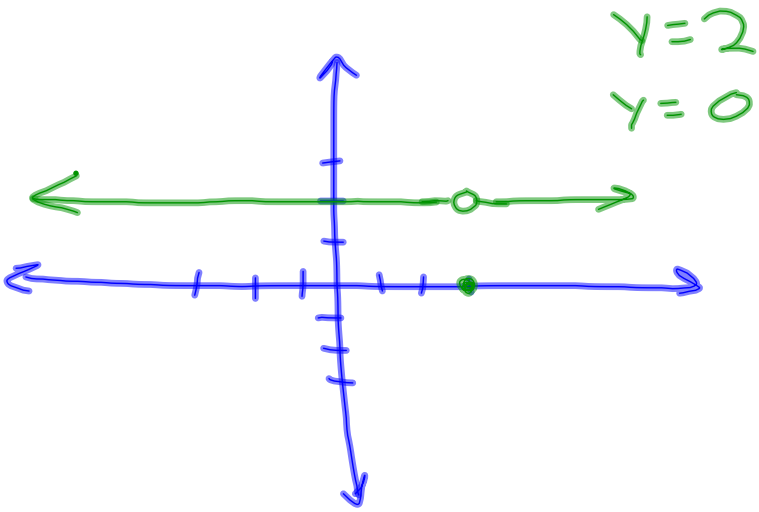
X	Y1
-.03	1.9849
-.02	1.9899
-.01	1.995
0	ERROR
.01	2.005
.02	2.01
.03	2.0149

X=-.03

Ex 4 Find $\lim_{x \to 1}\left(\frac{x^3-x^2+x-1}{x-1}\right)$

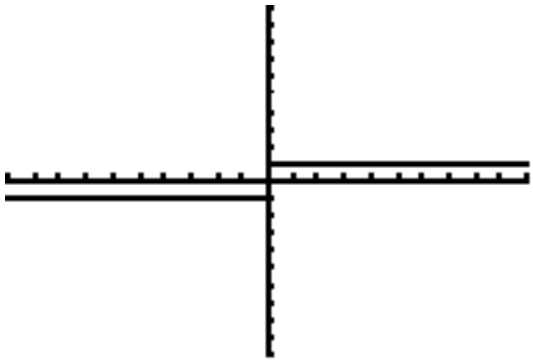
$= 2$

Ex 5 Find $\lim_{x \to 3} f(x)$ where $f(x) = \begin{cases} 2, x \neq 3 \\ 0, x = 3 \end{cases}$ $= 2$



Ex 6 Find $\lim_{x \to 0} \left(\frac{|x|}{x} \right)$

The limit does not exist



X	Y1
-.03	-1
-.02	-1
-.01	-1
0	ERROR
.01	1
.02	1
.03	1

X=-.03

D.N.E.

Practice
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#3-23 odds