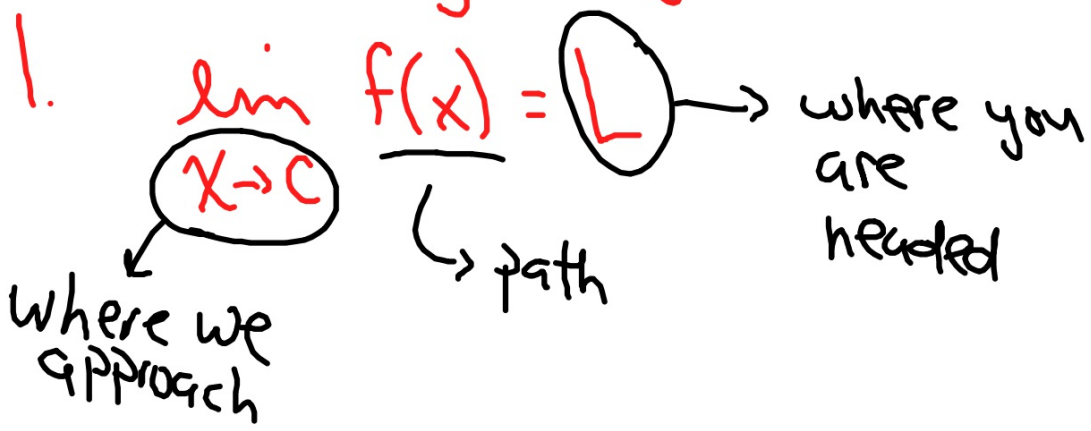
1.2 Limits

A. Limit - a value you approach but may not get to

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



Ex. $y = x^2$

$\lim_{x \to 3} x^2$

x	f(x)
1	1
2	4
2.5	6.25
2.9	
2.99	
2.999	

x	f(x)
5	25
4	16
3.1	
3.01	
3.001	
	9

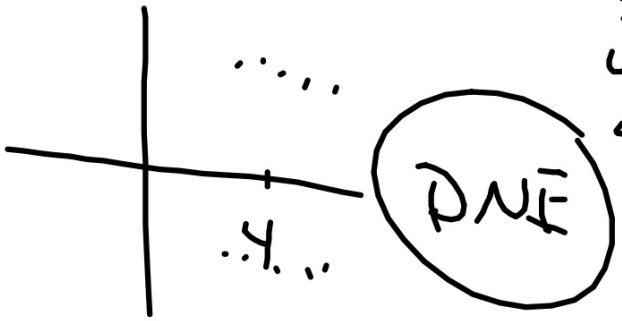
Ex. $\lim_{x \to 2} f(x)$

DNE

x	f(x)
1.9	5
1.99	6
1.999	7
2.1	-1
2.01	-2
2.001	-3

Ex. $\lim_{x \to 4} f(x)$

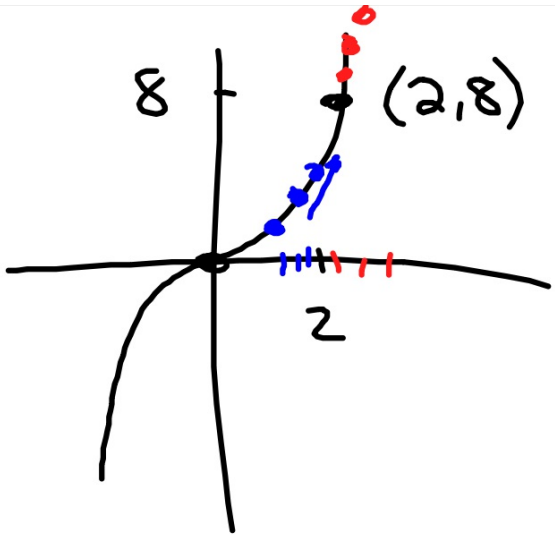
x	$f(x)$
3.9	+1
3.99	-1
3.999	+1
4.01	-1
4.001	+1



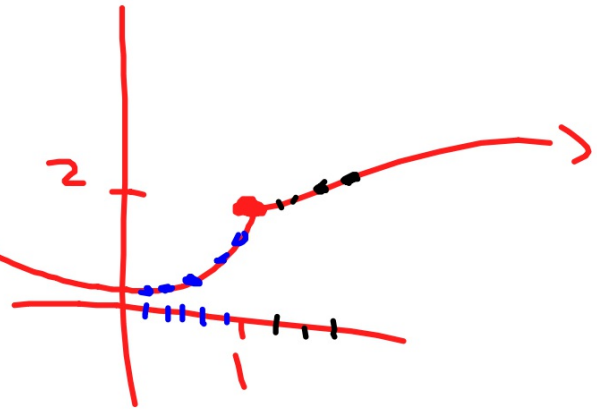
B. Graphs

A. $y = x^3$

$\lim_{x \to 2} x^3 = 8$

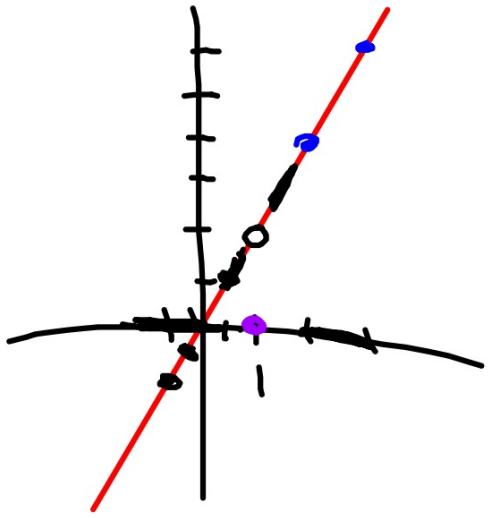


Ex. $\lim_{x \to 1000} f(x) = 2$

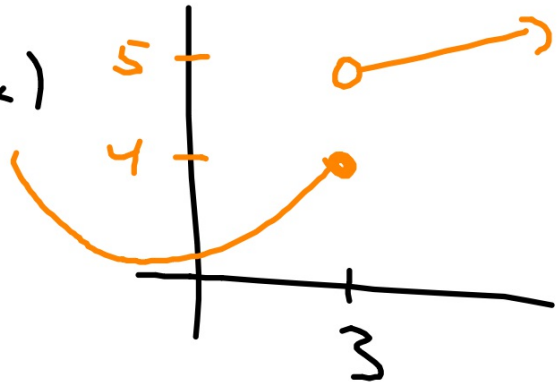


Ex. $\lim_{x \to 1} f(x) = 2$

$$f(x) = \begin{cases} 2x & x \neq 1 \\ 0 & x = 1 \end{cases}$$



Ex. $\lim_{x \to 3} f(x)$



DNE

$$f(x) \begin{cases} x^2 & x \leq 3 \\ 2x & x > 3 \end{cases}$$

1.2 2-8 Even

9-12, 16, 18, 20

23, 26