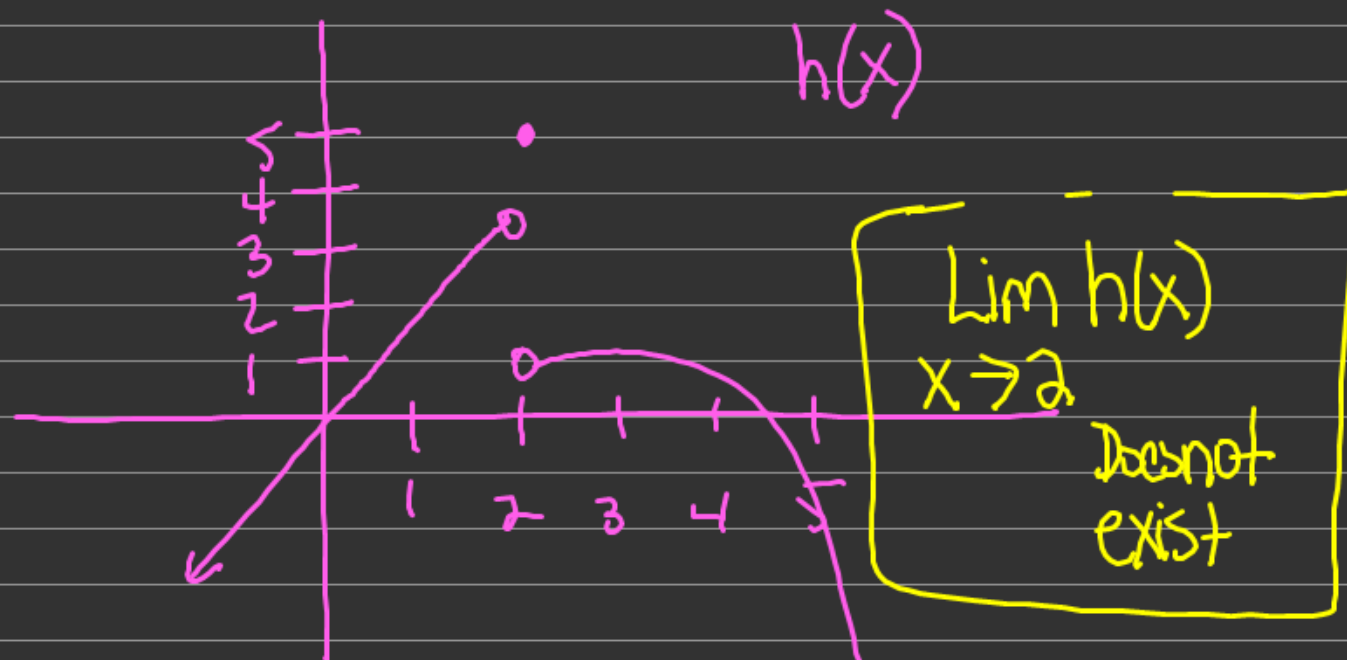
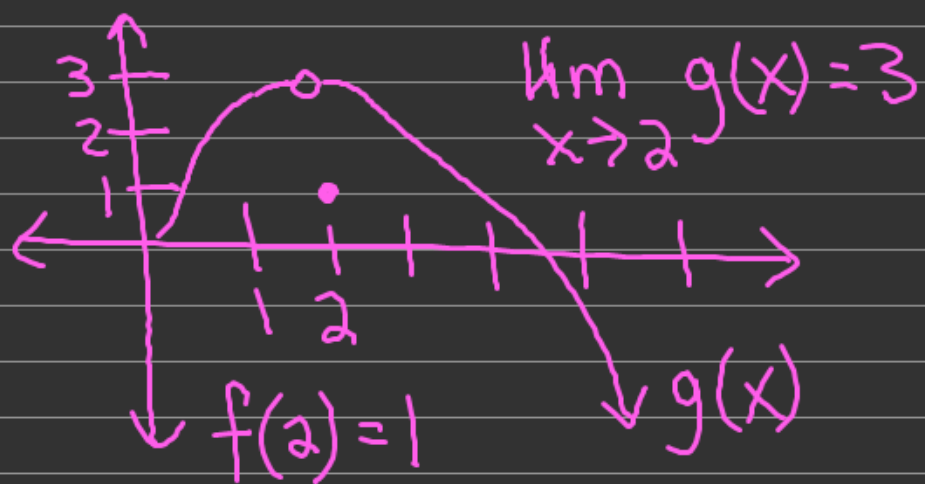
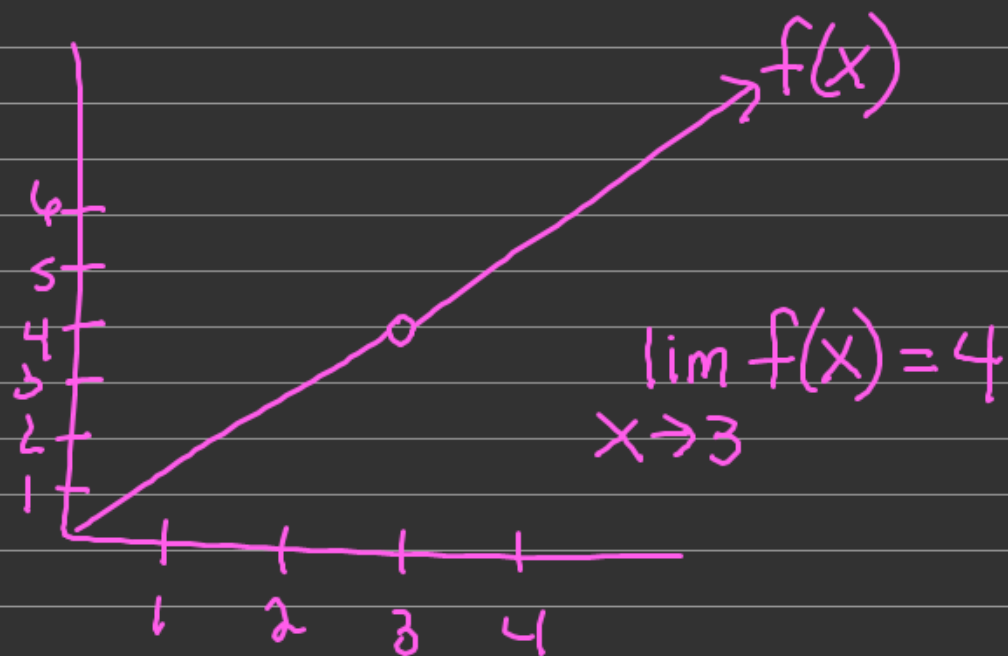


Limits Graphically & Algebraically 5/19

1/3



Right Hand Limit

$$\lim_{x \rightarrow 2^+} h(x) = 1$$

$$x \rightarrow 2^+$$

Left Hand Limit

$$\lim_{x \rightarrow 2^-} h(x) = 3.5$$

$$x \rightarrow 2^-$$

$$h(2) = 5$$

Limit Definition

If $f(x)$ gets arbitrarily close to a unique number L as x approaches c from either side then $\lim_{x \rightarrow c} f(x) = L$.

Ex) $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3} = \frac{(\cancel{x-3})(x+3)}{(\cancel{x-3})} = 3+3 = 6$ 2/3

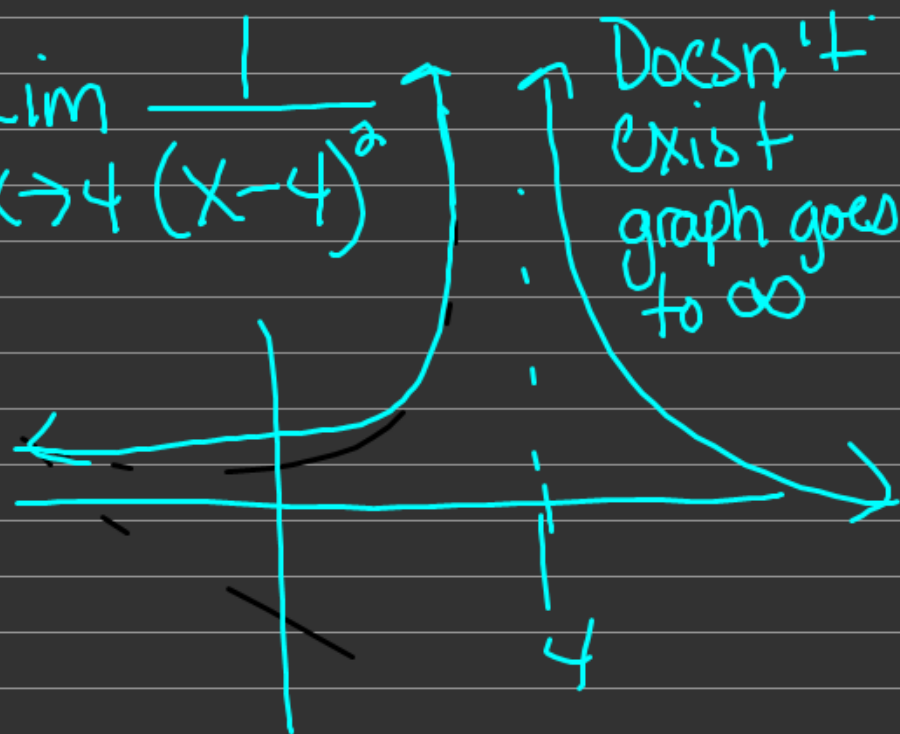
2.9	2.99	2.999	3	3.001	3.01	3.1
5.9	5.49	5.499	-	6.001	6.01	6.1

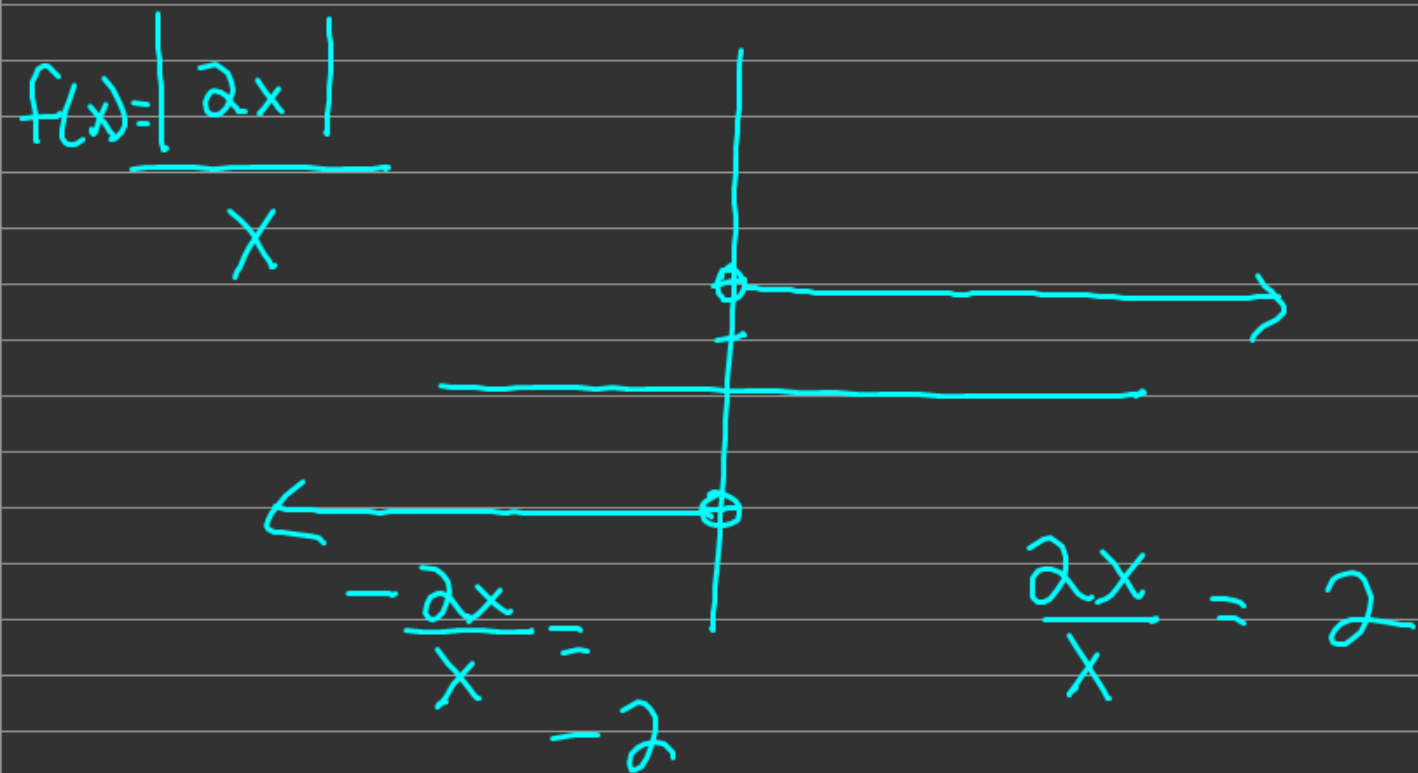
Ex) $\lim_{x \rightarrow 5} (-3x + 1) = -3(5) + 1 = -14$

4.9	4.99	4.999	5	5.001	5.01	5.1
-13.7	-13.97				-14.03	-14.3

-13.997 -14.003

Ex) $\lim_{x \rightarrow 4} \frac{1}{(x-4)^2}$





$$\lim_{x \rightarrow 0^+} f(x) = 2$$

$$\lim_{x \rightarrow 0^-} f(x) = -2$$

$$\lim_{x \rightarrow 0} f(x) = \text{Doesn't Exist}$$