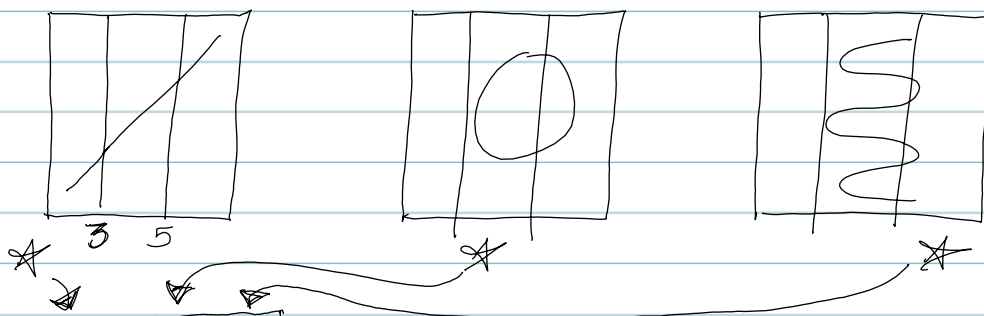


# INTRO TO PIECEWISE



$f(1) \rightarrow$  located in 1st piece  
 $f(6) \rightarrow$  " " 3rd piece

## PIECEWISE FUNCTIONS

$$f(x) = \begin{cases} x-2 & \text{if } x < 1 \\ x^2 & \text{if } -1 \leq x < 2 \\ -x+3 & \text{if } x \geq 2 \end{cases}$$

\*create a graph from each

(A)  $f(x) = x - 2$

$x < -1$  domain

left tail will show

x	y
-1	-3
-2	-4

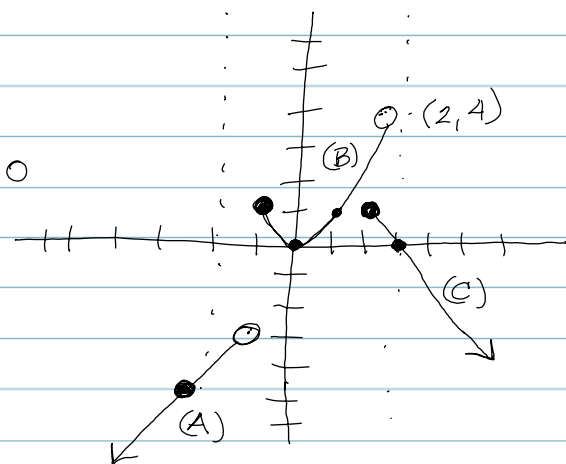
open  $\rightarrow$  o

(B)  $f(x) = x^2$   
 $-1 \leq x < 2$

x	y
-1	1
0	0
2	4

closed •

open o



(C)  $f(x) = -x + 3$   
 $x \geq 2$

x	y
2	1
3	0

closed •

D:  $\mathbb{R}$  (all real #'s)  
 R:  $(-\infty, 4)$   
 (lowest y to the highest y)

BONUS ?

(EX)  $f(x) = 6$

$f(6) =$  Ask which is true out of the 3 "ifs".  
 if  $x < 1$   
 if  $-1 \leq x < 2$   
 if  $x \geq 2$

part 3  $\rightarrow -x + 3$   
 $-(6) + 3 = -3$

part 3  
 $f(2) = -2 + 3 = 1$

part 3  
 $f(-4) = -4 - 2 = -6$

$$f(x) = \begin{cases} 2x+1 & \text{if } x \leq -2 \\ 3 & \text{if } x > -2 \end{cases}$$

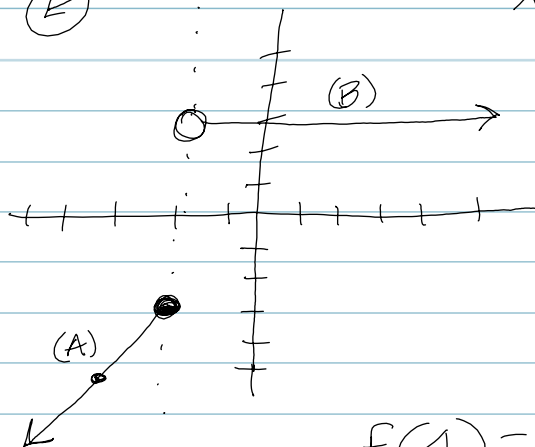
(A)  $f(x) = 2x + 1$   
 $x \leq -2$  ←

x	y
-2	-3
-3	-5

 closed

(B)  $f(x) = 3$  ← →

x	y
-2	3
0	3

 open

D:  $\mathbb{R}$  (all real #'s)

R:  $(-\infty, -3] \cup \{3\}$

$f(A) = 3$   
part 2