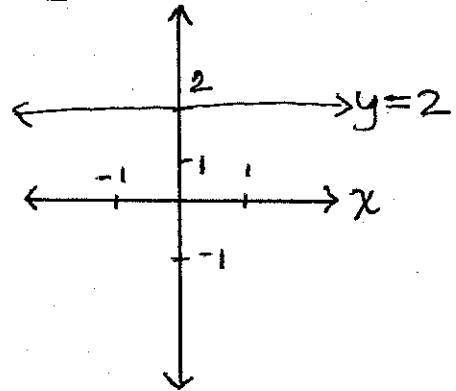


**ASSIGNMENT #**  
 201-009-50 C2  
**PIECE-WISE FUNCTIONS**  
**SOLUTIONS**

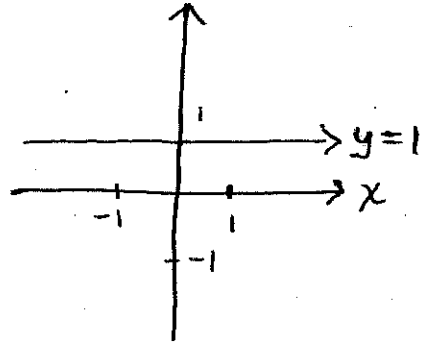
#1  $f(x) = \begin{cases} 2 & x > 3 \\ 1 & x = 3 \\ -1 & x < 3 \end{cases}$

INDIVIDUAL GRAPHS

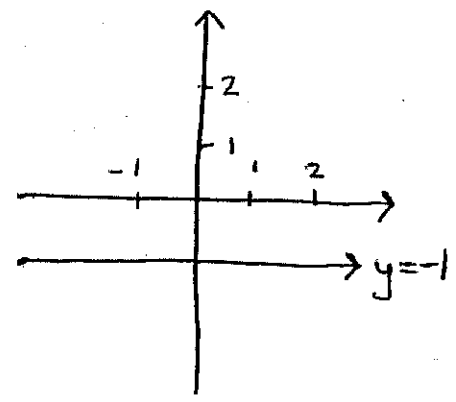
$y = 2$



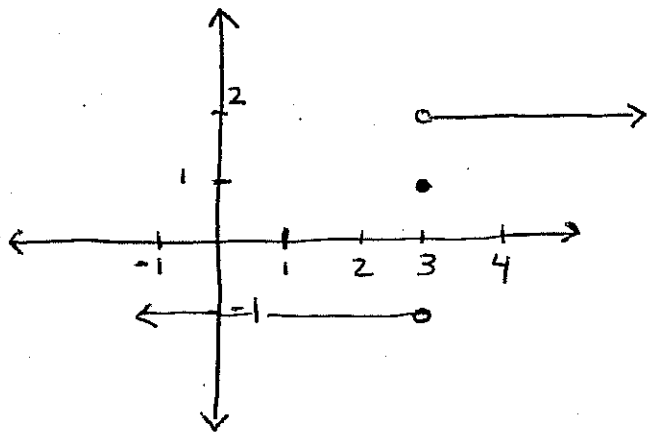
$y = 1$



$y = -1$



PIECE-WISE GRAPH  $f(x)$



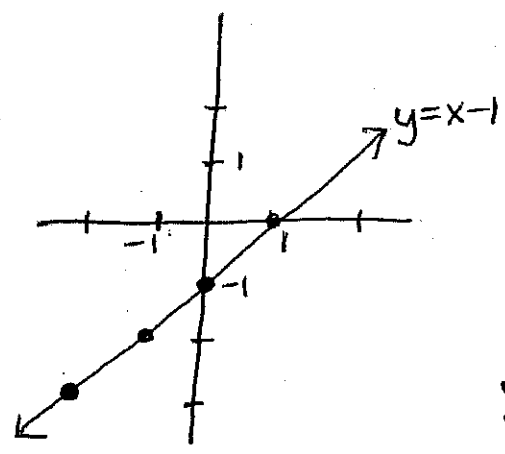
#2  $f(x) = \begin{cases} x-1 & x > -1 \\ -x+2 & x \leq -1 \end{cases}$

Individual Graphs

$y = x - 1$

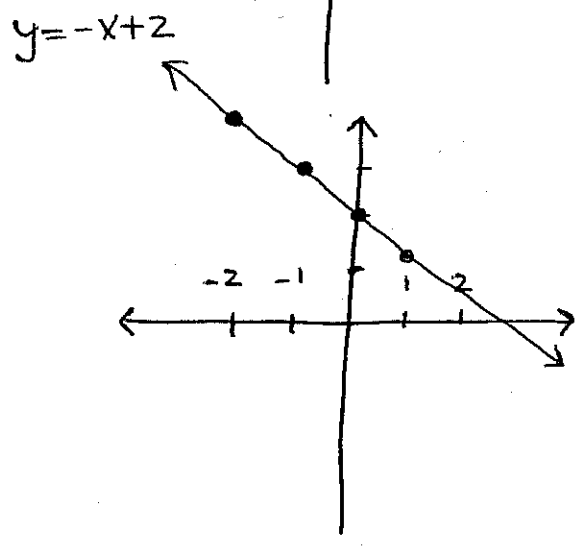
Since it is a line we can use a table of values

x	y
-2	-3
-1	-2
0	-1
1	0

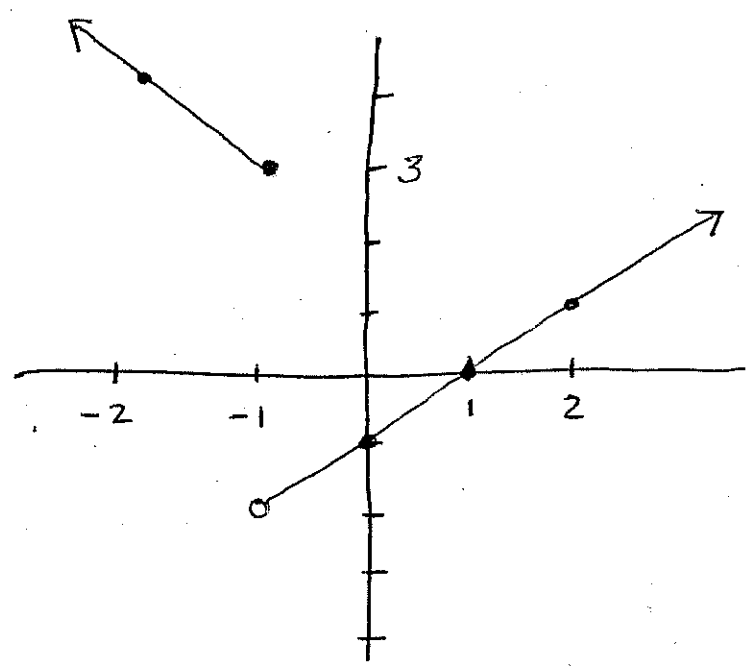


$y = -x + 2$

x	y = -x + 2
-2	4
-1	3
0	2
2	0



Piece-wise graph f(x)



#3  $f(x) = \begin{cases} x^2 - 4x + 3 & x \geq 1 \\ -2x - 2 & x < 1 \end{cases}$

Individual GRAPHS

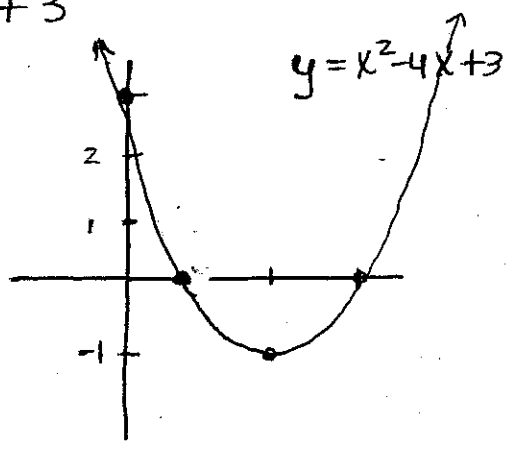
$y = x^2 - 4x + 3$

vertex:  $x = \frac{4}{2} = 2$

$y = 2^2 - 4(2) + 3 = -1$   
 $(2, -1)$

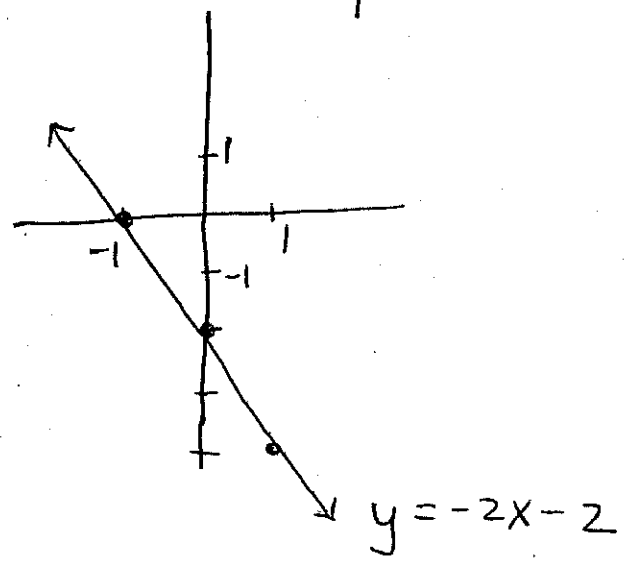
y-intercept  
 $(0, 3)$

x-intercepts  
 $0 = x^2 - 4x + 3 = (x-3)(x-1)$   
 $(3, 0)$  &  $(1, 0)$

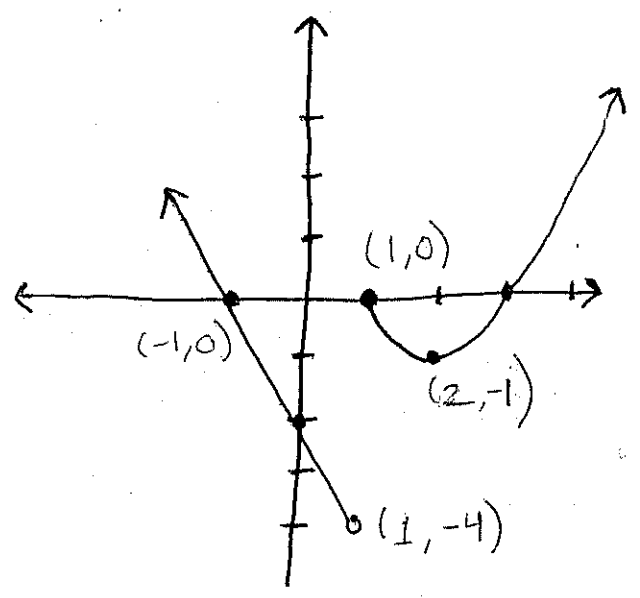


$y = -2x - 2$

x	y
-1	0
0	-2
1	-4



Piece-wise graph f(x)



$$\#4 \quad f(x) = \begin{cases} \sqrt{x-2} & x \geq 2 \\ x^2 - 1 & x < 2 \end{cases}$$

Individual Graphs

$$y = \sqrt{x-2}$$

DOMAIN  $[2, \infty)$

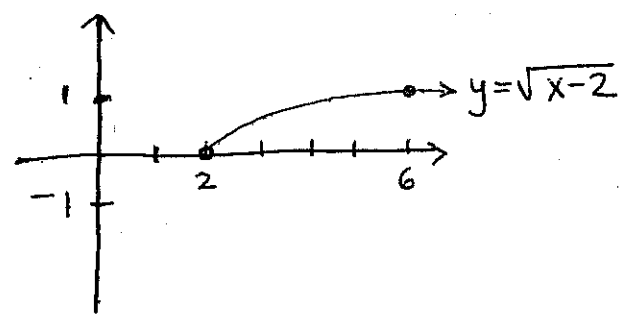
START value

$$x=2 \quad y=0$$

OTHER points

$$x=6 \quad y=2$$

$$x=11 \quad y=3$$



$$y = x^2 - 1$$

vertex  $x = \frac{0}{2} = 0$

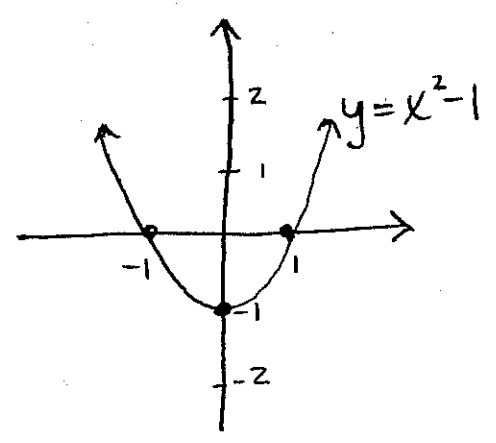
$$y = -1$$

y-intercept  $(0, -1)$

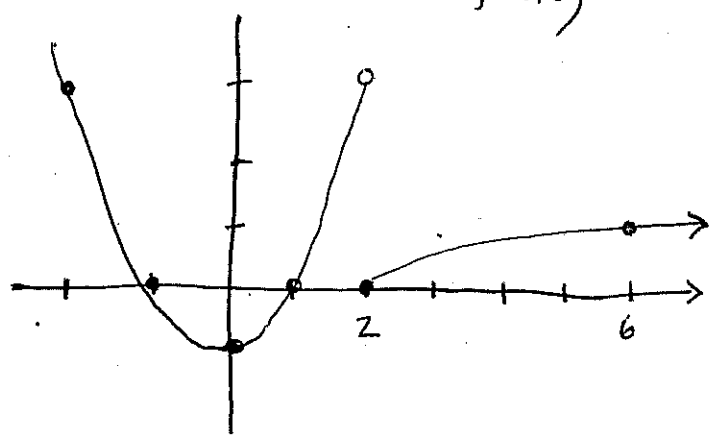
x-intercepts

$$0 = x^2 - 1 \\ = (x+1)(x-1)$$

$(-1, 0)$  &  $(1, 0)$



Piece-wise Graph  $f(x)$



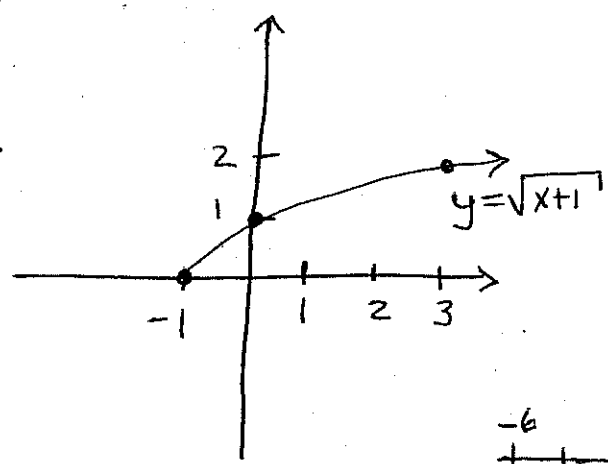
#5  $f(x) = \begin{cases} \sqrt{x+1} & x > 0 \\ -\sqrt{-x+3} & x \leq 0 \end{cases}$

Individual Graphs

$y = \sqrt{x+1}$

DOMAIN:  $[-1, \infty)$

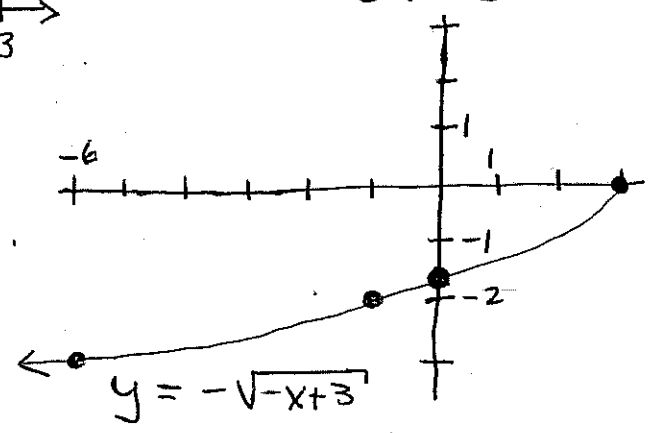
x	y
-1	0
0	1
3	2



$y = -\sqrt{-x+3}$

DOMAIN:  $(-\infty, 3]$

x	y
3	0
-1	-2
0	$-\sqrt{3}$
-6	-3



piece-wise graph  $f(x)$

