

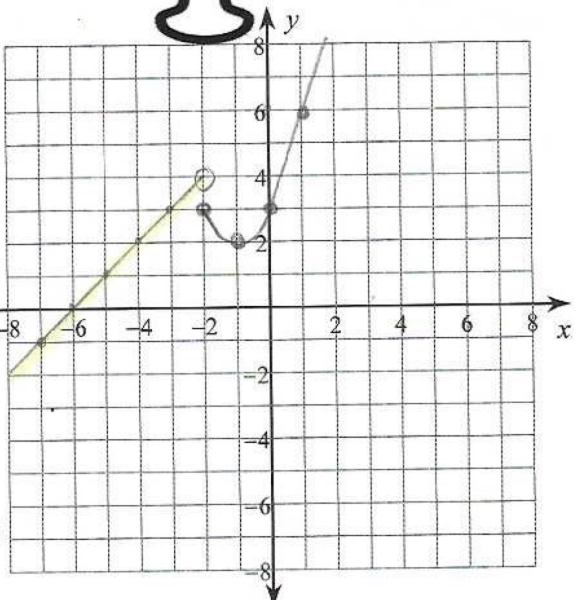
# Activity: Piecewise Functions

1.)  $m = \frac{1}{1}$   
 $f(x) = \begin{cases} x+6 & b=6 \text{ open } x < -2 \\ x^2+2x+3 & x \geq -2 \end{cases}$   
 vertex  $(-1, 2)$  closed

Is it a function? yes

$f(3) = \underline{18}$   
 $f(-4) = \underline{2}$   
 $f(-2) = \underline{3}$

x	y
-2	3
-1	2
0	3
1	6
2	11
3	18

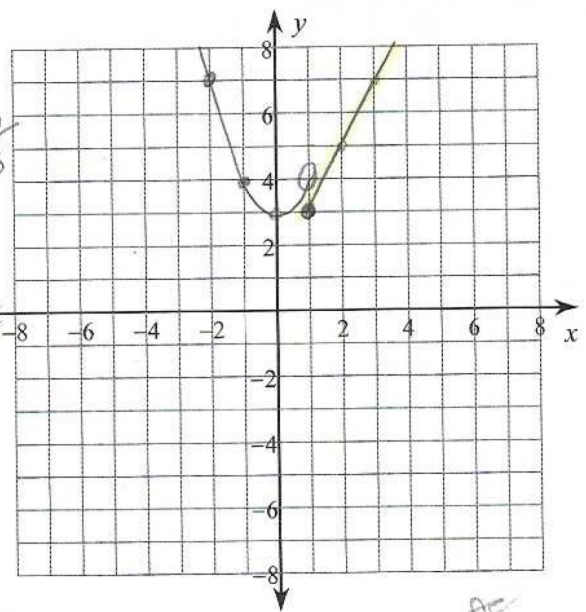


2.)  $m = \frac{2}{1}$   $b=1$   
 $f(x) = \begin{cases} 2x+1 & \text{closed } x \geq 1 \\ x^2+3 & \text{open } x < 1 \end{cases}$   
 vertex  $(0, 3)$  open

Is it a function? yes

$f(-2) = \underline{7}$   
 $f(6) = \underline{13}$   
 $f(1) = \underline{3}$

x	y
-2	7
-1	4
0	3
1	4



3.) *horizontal line*  
*closed*  
 $f(x) = \begin{cases} 5 & x \leq -3 \\ -2x - 3 & x > -3 \end{cases}$   
*m = -2 b = -3 open*

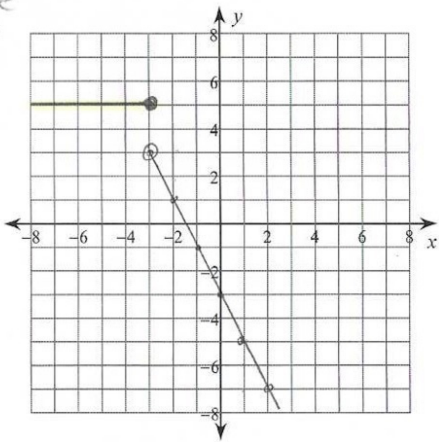
Is it a function? *yes*

$f(-4) = 5$

$f(0) = -3$

$f(3) = -9$

$f(3) = -2(3) - 3$   
 $= -9$



5.)  $m = \frac{4}{2} b = -2$   
 $f(x) = \begin{cases} 4x - 2 & x \leq 2 \\ -\frac{3}{2}x + 7 & x > 2 \end{cases}$

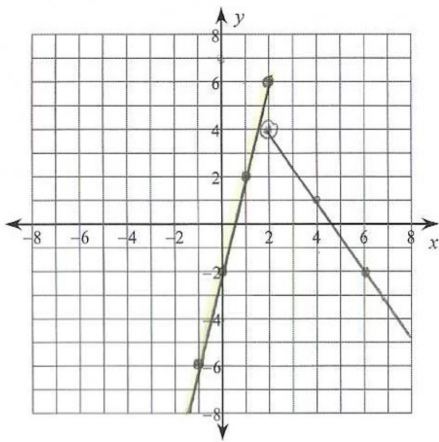
$m = -\frac{3}{2} b = 7$   
 Is it a function? *yes*

$f(-4) = -18$

$f(6) = -2$

$f(2) = 6$

$f(-4) = 4x - 2$   
 $= 4(-4) - 2$   
 $= -18$



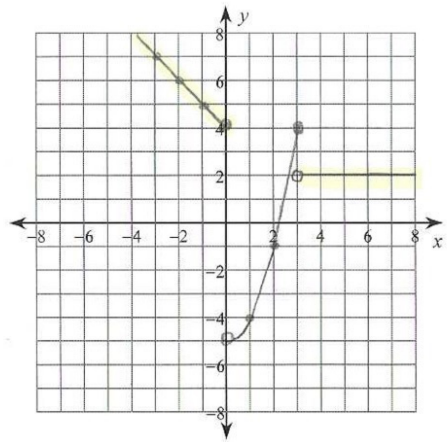
4.)  $f(x) = \begin{cases} -x + 4 & x \leq 0 \\ x^2 - 5 & 0 < x \leq 3 \\ 2 & x > 3 \end{cases}$

Is it a function? *yes*

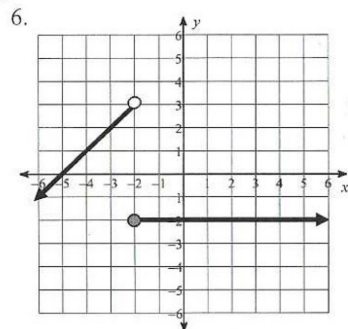
$f(-2) = 6$

$f(0) = 4$

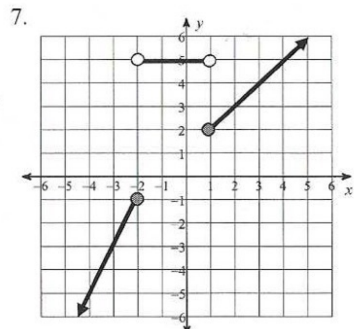
$f(5) = 2$



Write equations for the piecewise functions whose graphs are shown below.



$f(x) = \begin{cases} x + 5 & x < -2 \\ -2 & x \geq -2 \end{cases}$



$f(x) = \begin{cases} 2x + 3 & x \leq -2 \\ 5 & -2 < x < 1 \\ x + 1 & x \geq 1 \end{cases}$