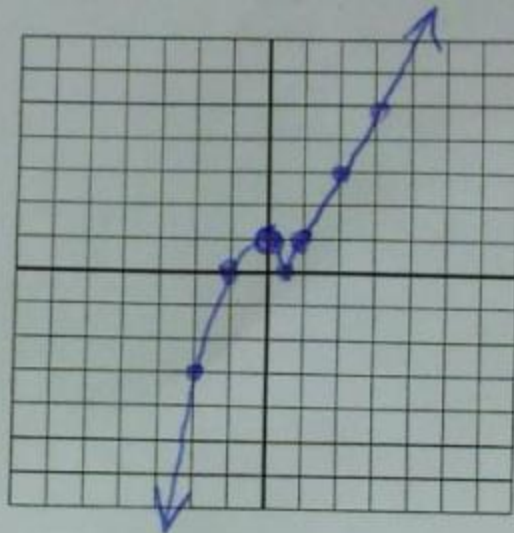


3. Graph each of the following piecewise function and complete each part below.
- Determine the limit from the left-side and right-side limit as  $x$  approaches  $c$ .
  - Determine if the limit exists overall as  $x$  approaches  $c$ .
  - Find  $f(c)$ .
  - Does the limit as  $x$  approaches  $c$  equal  $f(c)$ ?

vert. stretch  
↓  
 $y = |2(x - \frac{1}{2})|$   
↑  
 $R \frac{1}{2}$

x	y
-3	-8
-2	-3
-1	0
0	1

x	y
0	1
1	1
2	3
3	5
$\frac{1}{2}$	0



$$f(x) = \begin{cases} -x^2 + 1, & x < 0 \\ |2x - 1|, & x \geq 0 \end{cases} \text{ for } c = 0$$

a)  $\textcircled{L} = 1$   
 $\textcircled{R} = 1$

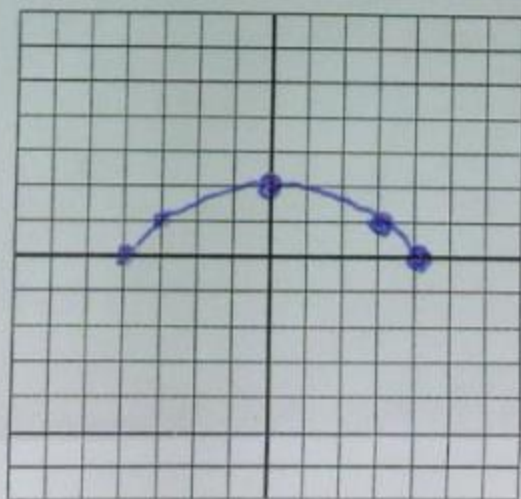
b) yes it's 1

c) 1

d) yes (1=1)

x	y
-4	0
-3	1
-2	$\sqrt{2}$
-1	$\sqrt{3}$
0	2

x	y
0	2
1	$\sqrt{3}$
2	$\sqrt{2}$
3	1
4	0



$$f(x) = \begin{cases} \sqrt{4+x}, & -4 \leq x < 0 \\ \sqrt{4-x}, & 0 \leq x \leq 4 \end{cases} \text{ for } c = -4$$

a)  $\textcircled{L}$  DNE

$\textcircled{R}$  0

b) DNE since  $\textcircled{L}$  DNE

c) 0

d) overall limit DNE so no.