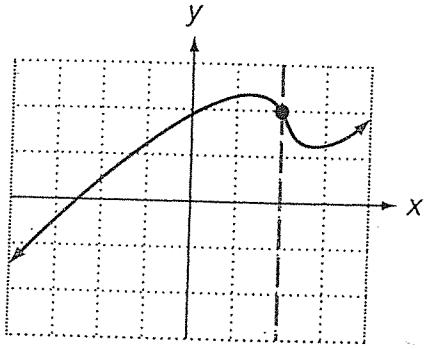
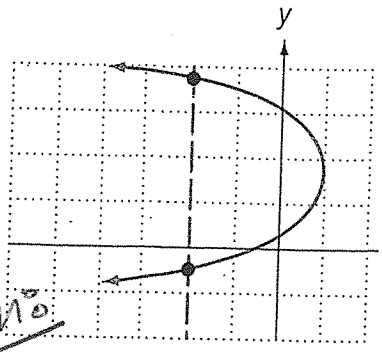
GRAPH *A*



GRAPH *B*



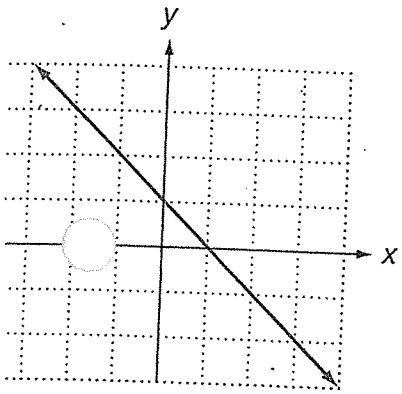
Function:

- any vertical line that intersects the graph, will intersect the graph in exactly 1 point.
  1 y-value for each x-value.

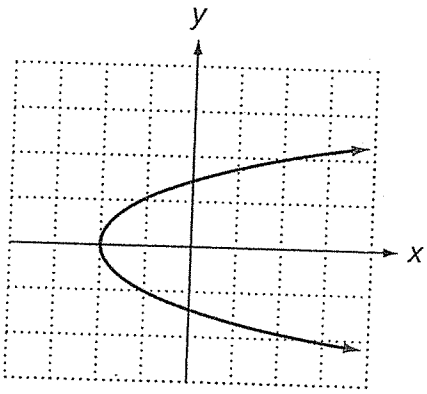
Not function:

- vertical line intersects same x-coordinate with more than 1 y-coordinate

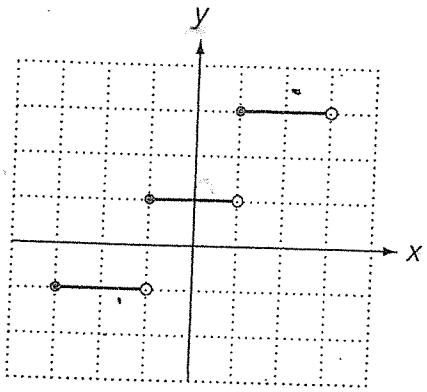
EXAMPLE 1 Which of the following are graphs of functions?



function.
o vertical line crosses the
aph more than once.

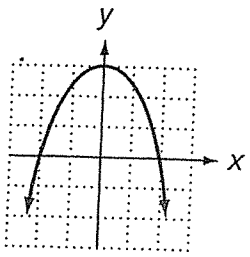


Not a function.
A vertical line crosses the graph more than once.



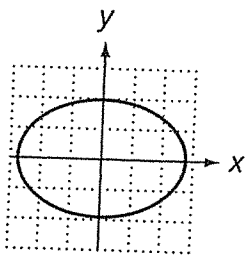
A function.
No vertical line crosses the graph more than once.

ry This Which of the following are graphs of functions?



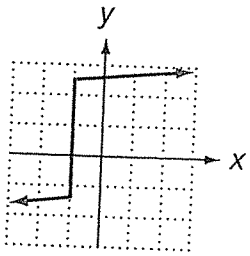
Fuction
x^2

b.



Not function

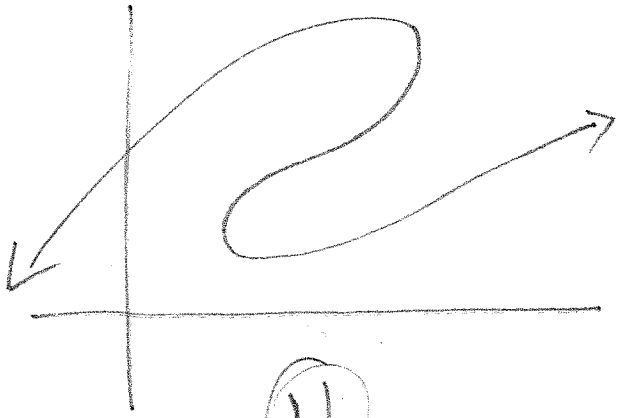
c.



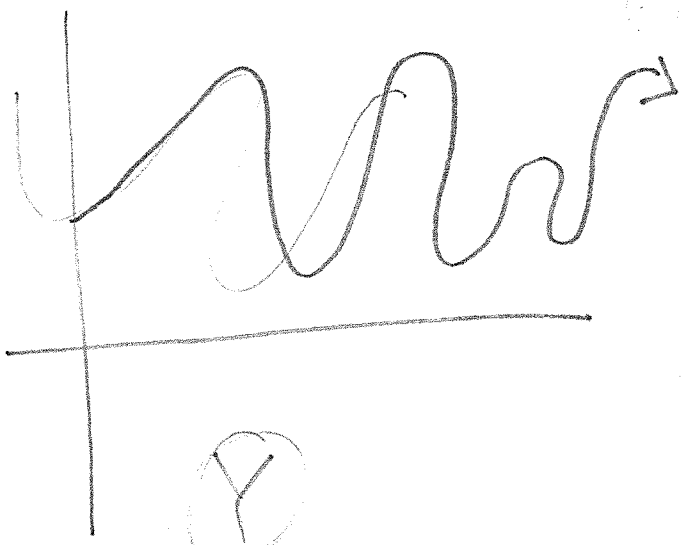
Not a function

draw on board

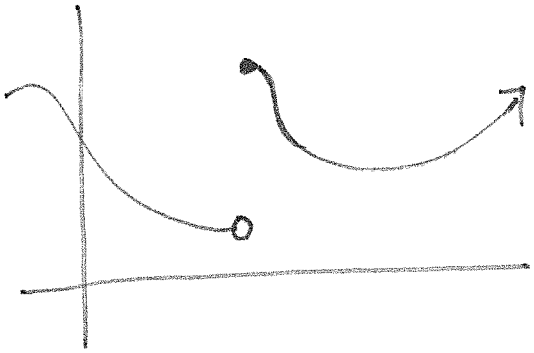
Draw on board



N



Y



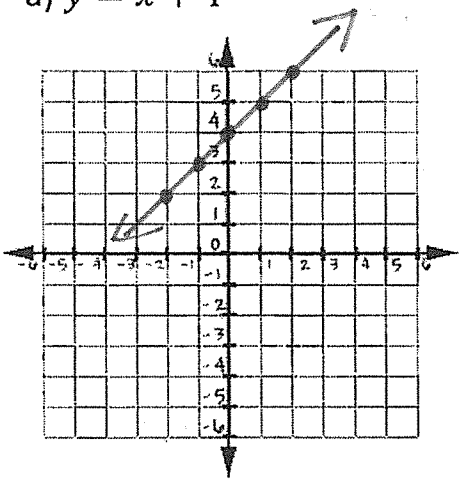
Y

Key

Notes II (Functions)

1) Is the relationship defined by each equation a function?

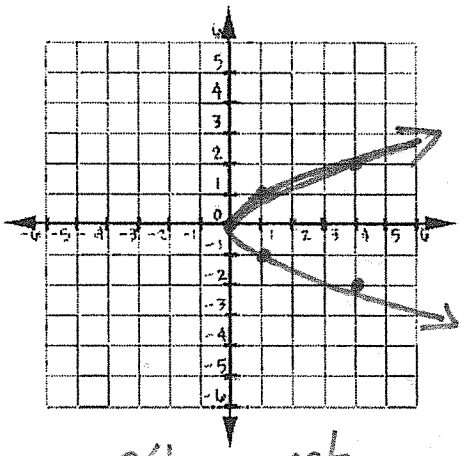
a) $y = x + 4$



x	y
0	4
1	5
2	6
-1	3
-2	2

yes a function

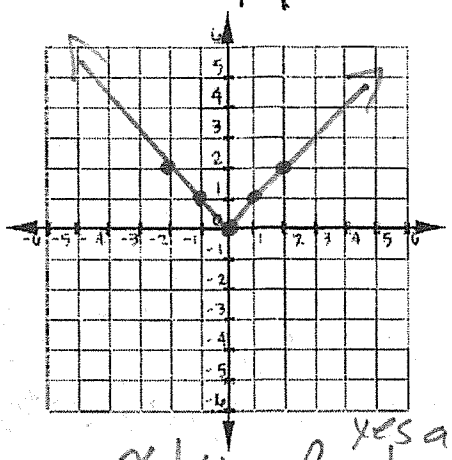
b) $x = y^2$ parabola



x	y
0	0
1	-1
1	1
4	2
4	-2

not function

c) $y = |x|$ "V"

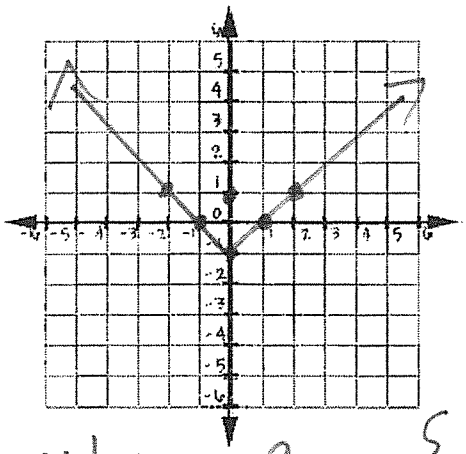


x	y
0	0
1	1
2	2
-1	1
-2	2

yes a function

2) Graph each function. Then find the range.

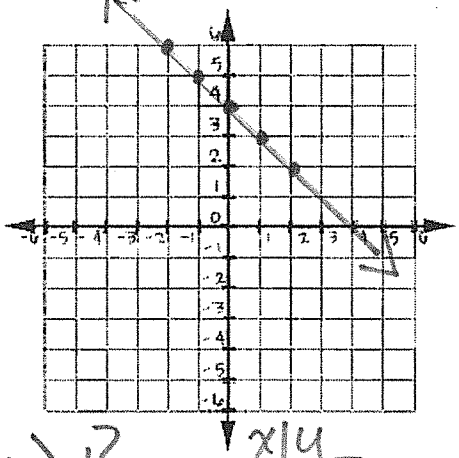
a) $f(x) = |x| - 1$



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

Range: $\{y \mid y \geq -1\}$

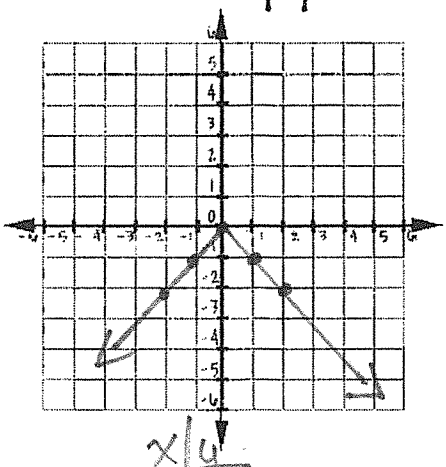
b) $g(x) = -x + 4$



x	y
0	4
1	3
2	2
-1	5
-2	6

$g(x)$ = all real #s

c) $h(x) = -|x|$



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

$h(x) = \{y \mid y \leq 0\}$

Find the domain of each function.

A) $h(x) = \sqrt{x}$

Domain: $\{x \mid x \geq 0\}$

b) $g(x) = \sqrt{x+2}$

Domain: $\{x \mid x \geq -2\}$

Graph each function. State the domain and the range.

a) $f(x) = |x| - 3$

Domain: all real #s

Range: $\{y \mid y \geq -3\}$

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