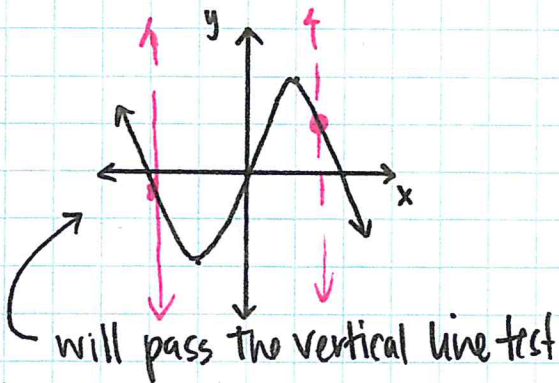


# TOOLKIT #25: FUNCTIONS vs. RELATIONS

## FUNCTION, AND A RELATION

A function has 1 and only 1 output for each input.

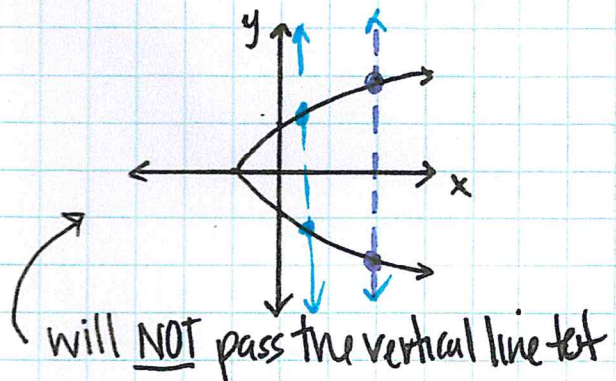
x	y	INPUT	OUTPUT
-2	3	0	0
-1	0		
0	1		
1	0		
2	3	2	3



## NOT A FUNCTION, BUT STILL A RELATION

A relation has 2 or more outputs for an input.

x	y	INPUT	OUTPUT
0	-2	2	3
1	1		
2	5		
3	8		



Function Notation  $f(x)$

Sometimes we use  $f(x)$  instead of  $y$

$$\begin{aligned}
 & \swarrow y = 3x + 4 \\
 & \searrow f(x) = 3x + 4
 \end{aligned}$$