

Functions

Wednesday, April 17, 2019 12:14 PM

Relations: a rule that produces output numbers from valid input numbers

A relation can be expressed in a number of ways:

① Words: eg Triple a number & then decrease it by two

② Equation: $y = 3x - 2$ input # $\rightarrow x$
output # $\rightarrow y$

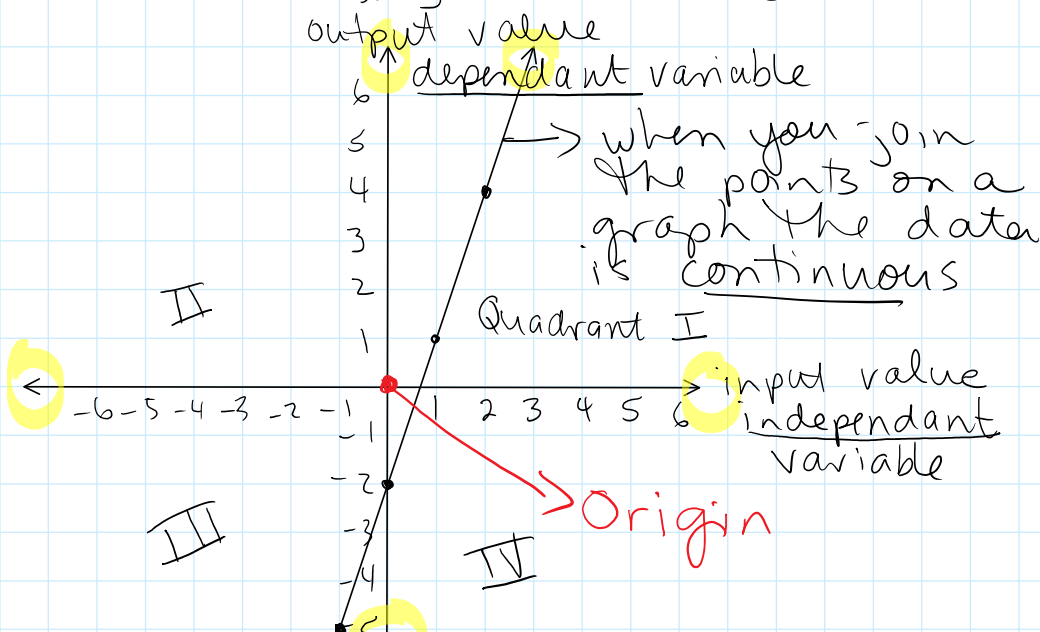
③ Table of Values:

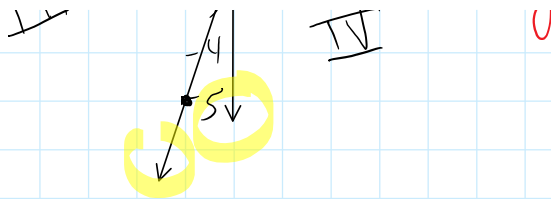
input x	output y
-1	-5
0	-2
1	1
2	4

④ Ordered pairs: (x, y) (input, output)

$(-1, -5)$ $(0, -2)$ $(1, 1)$ $(2, 4)$

⑤ Graph:



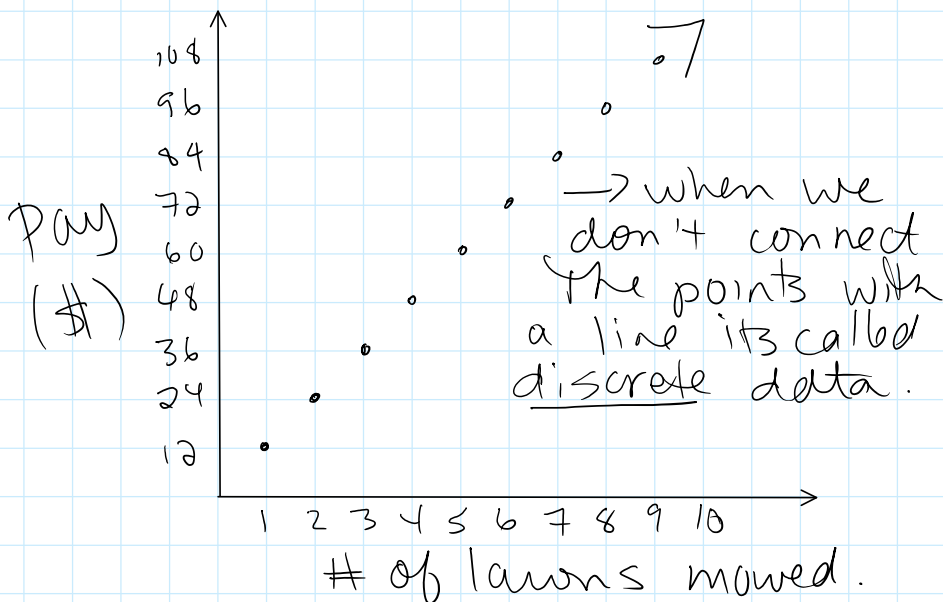


Lee is paid \$12 to mow a lawn. Draw a graph that shows the relation between number of lawns mowed and pay.

$$\text{Pay} = P$$

$$\# \text{ lawns mowed} = m.$$

m	P
1	12
2	24
3	36
4	48



Function: is a rule that produces one and only one output number for every valid input number. A function is a type of relations.



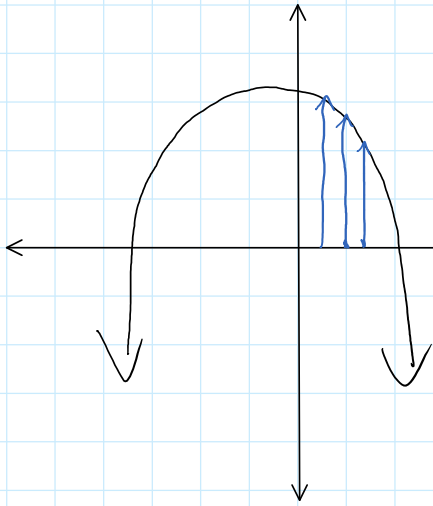
eg

x	y
1	3
1	4
2	5
2	6

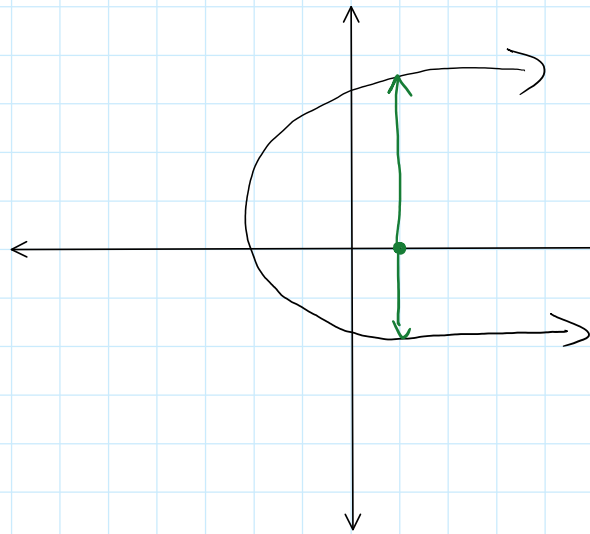
Is this a function? NO

1 has 2 output numbers: 3 and 4.

$(1, 2)$ $(2, 2)$ $(3, 5)$ $(4, 5)$ Is this a function?
 Yes, every input number only has 1 output number.

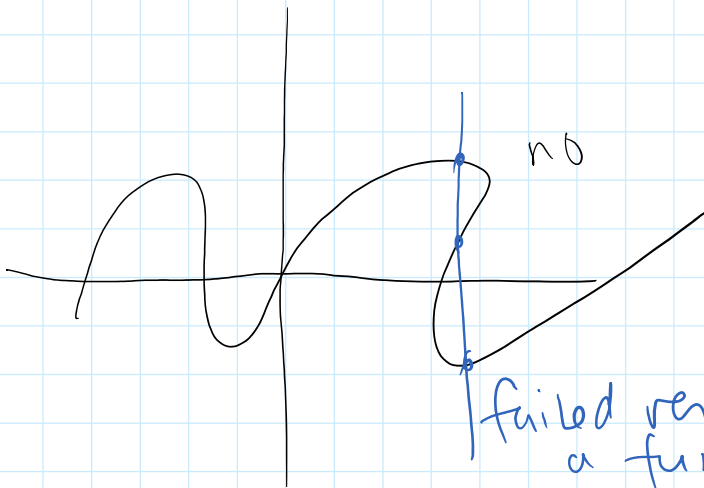


Yes, every input number has only 1 output number.

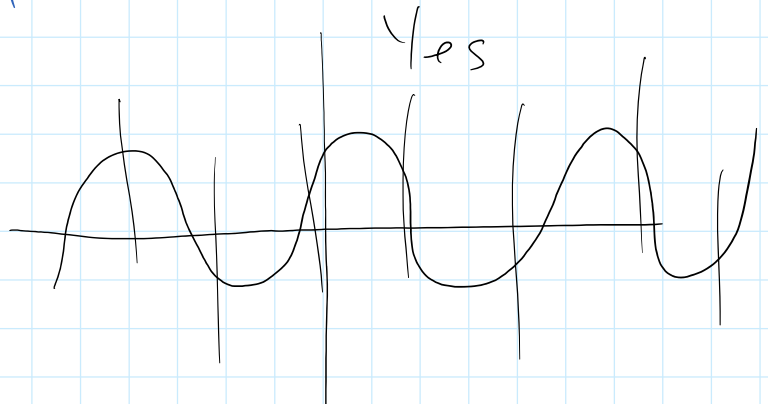
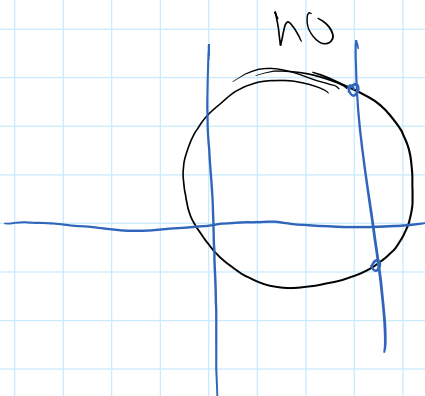


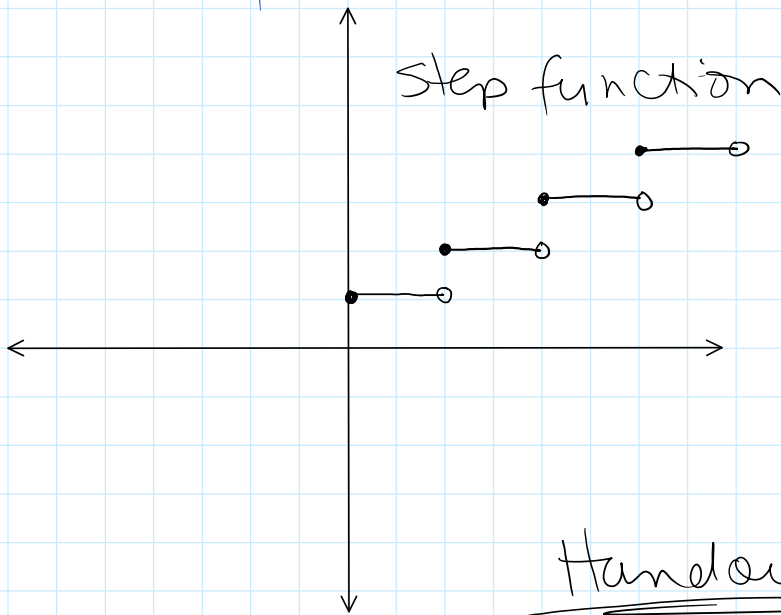
NO, because input # has 2 output numbers

Vertical line test.



failed vertical line test ∴ not a function.





- means the point is part of graph
- means the point is not part of graph.