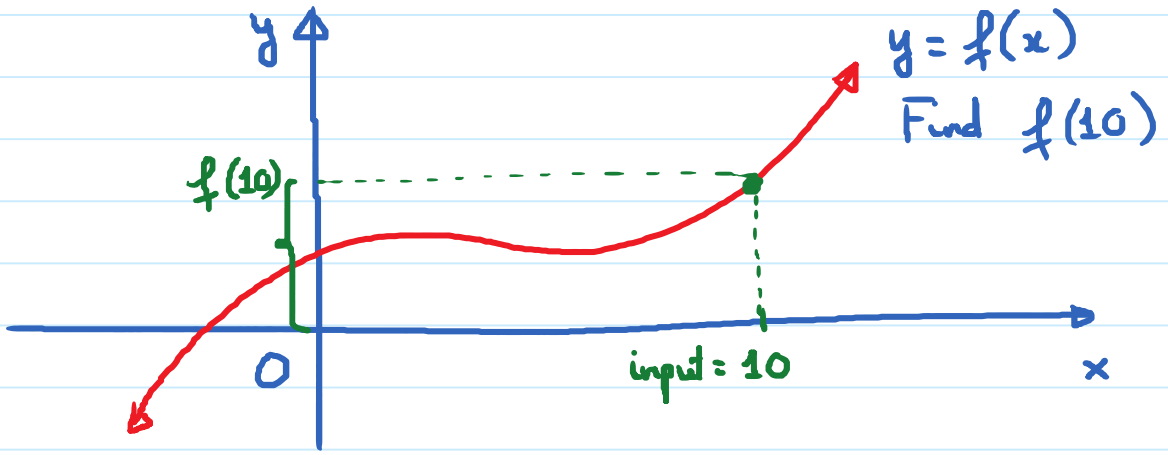
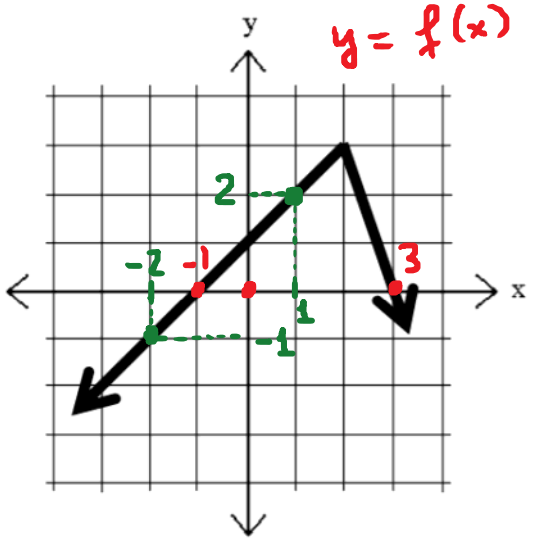
Interpreting Graphs

Wednesday, January 23, 2019 1:00 PM

* Find a function value by substituting a # / a variable into the formula of the function and simplify.
* We can also find a function value by using the graph of the function.



E.g.

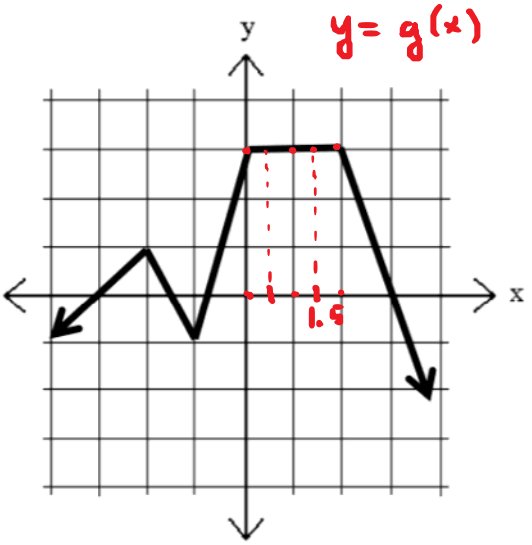


$f(-2) = -1$

$f(1) = 2$

Find x such that $f(x) = 0$

$x = -1, x = 3$



$f(-3) = 0$, $f(3) = 0$

$f(-1) = -1$

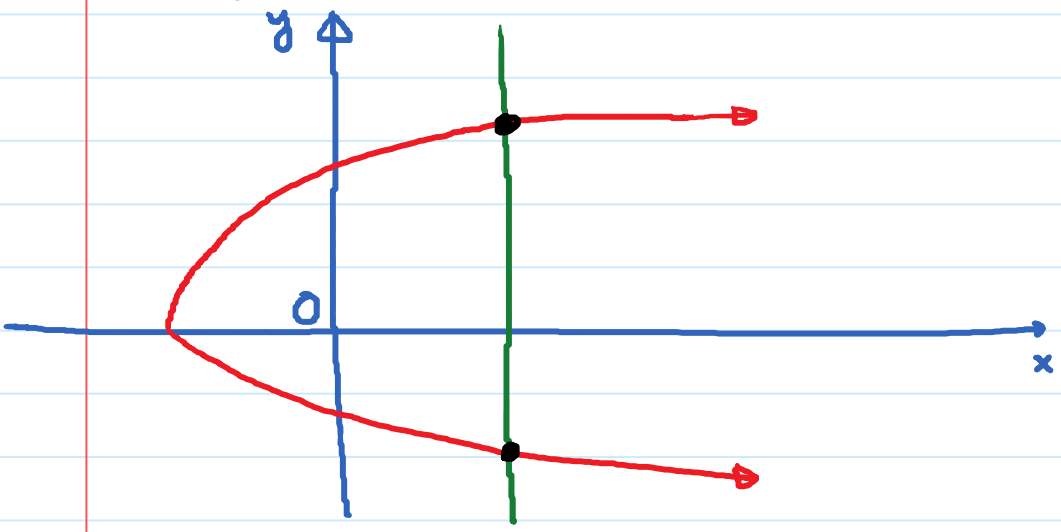
Find x such that $f(x) = 3$.

Answer: $[0, 2]$

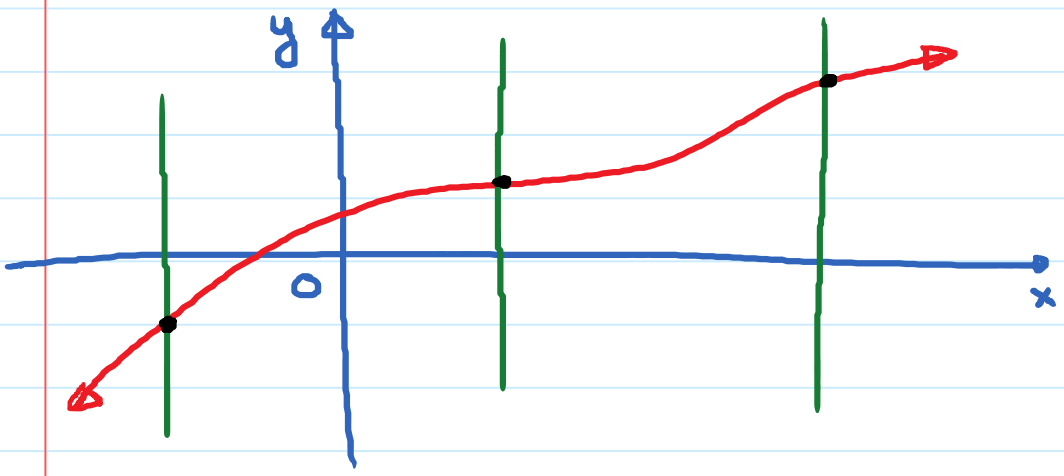
Vertical Line Test

The vertical line test states that if every vertical line crosses the graph of a relation at most once, then the graph is the graph of a function.

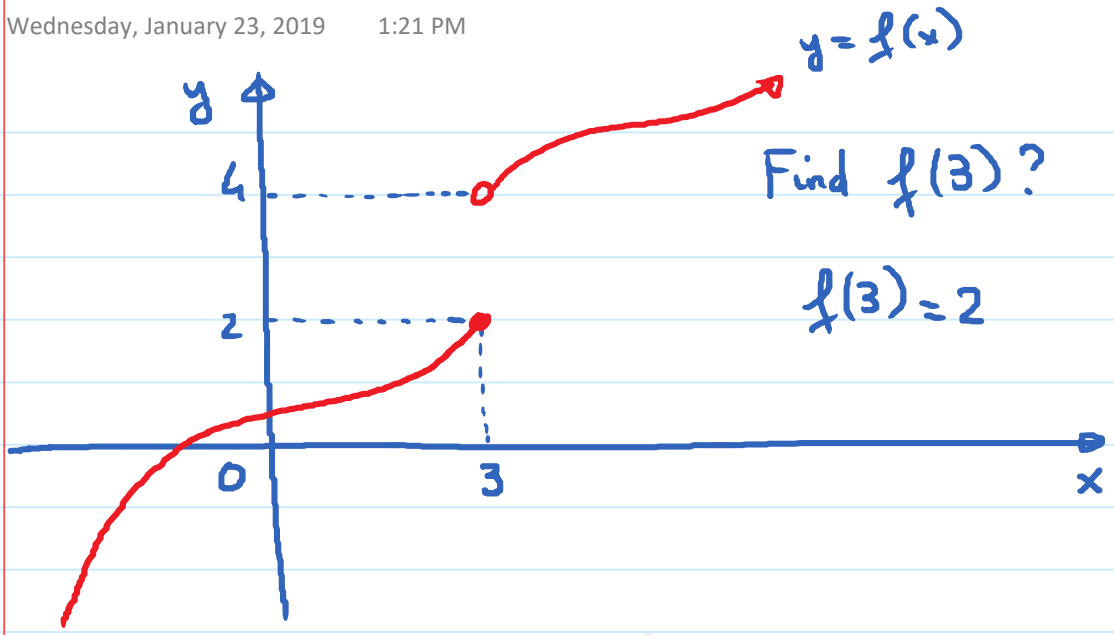
On the other hand, if there is a vertical line that crosses the graph more than once, then the graph is NOT the graph of a function.



Not a function.



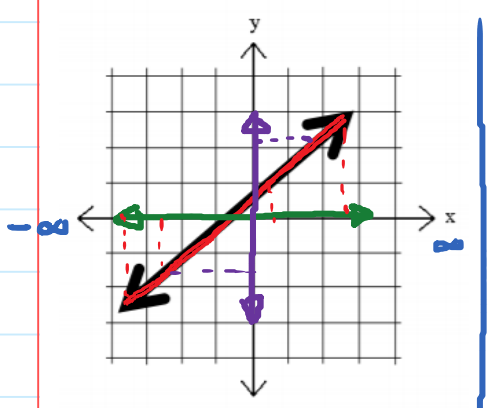
a function



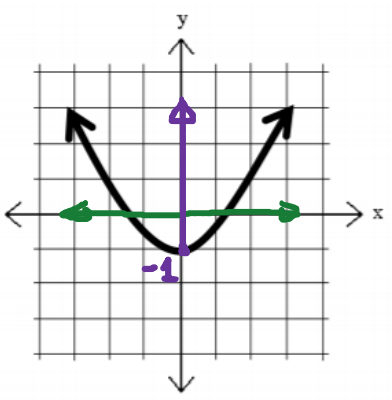
* Finding Domain and Range of a graph.

The domain of a graph is the set of all x-values that the graph covers.

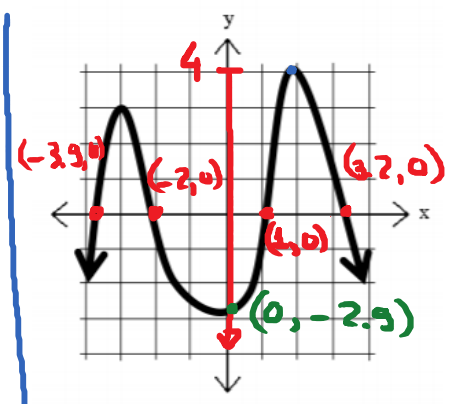
The range of a graph is the set of all y-values that the graph covers.



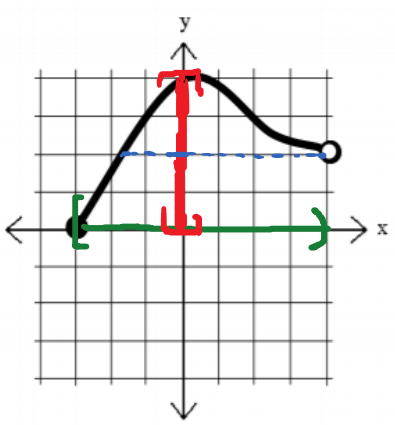
D = all real #s
= $(-\infty, \infty)$
R = all real #s
= $(-\infty, \infty)$



D = $(-\infty, \infty)$
R = $[-1, \infty)$
or = $\{x \mid x \geq -1\}$

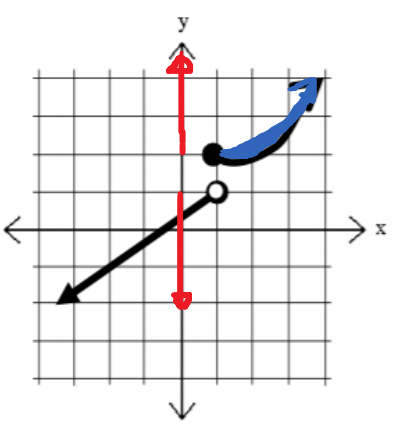


D = $(-\infty, \infty)$
R = $(-\infty, 4]$
or = $\{x \mid x \leq 4\}$



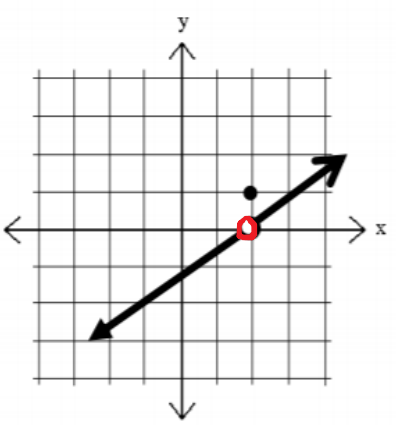
$D = [-3, 4)$

$R = [0, 4]$



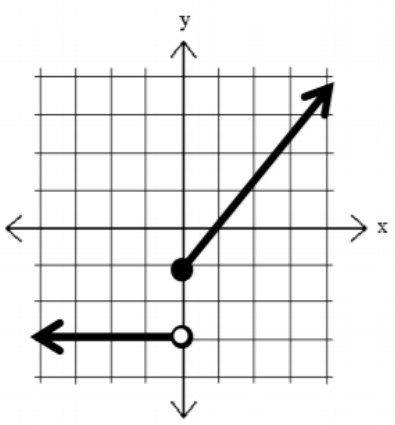
$D = (-\infty, \infty)$

$R = (-\infty, 1) \cup [2, \infty)$



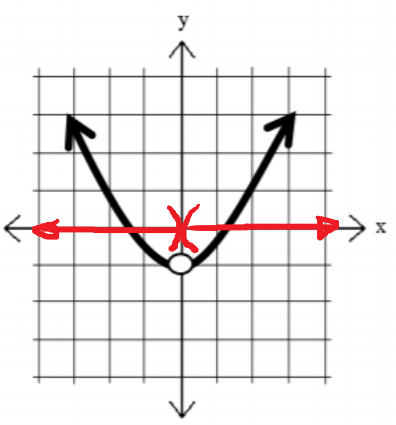
$D = (-\infty, \infty)$

$R = (-\infty, 0) \cup (0, \infty)$



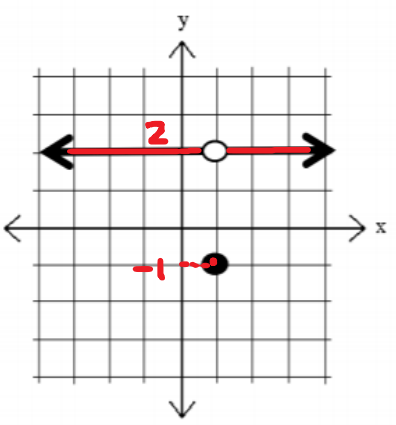
$D = (-\infty, \infty)$

$R = \{-3\} \cup [-1, \infty)$



$D = (-\infty, 0) \cup (0, \infty)$

$R = (-1, \infty)$



$D = (-\infty, \infty)$

$R = \{-1, 2\}$

the range consists of 2 numbers: -1 and 2.