Answer on Question #60643 – Math – Algebra

Question

How do you do relations and functions?

Solution

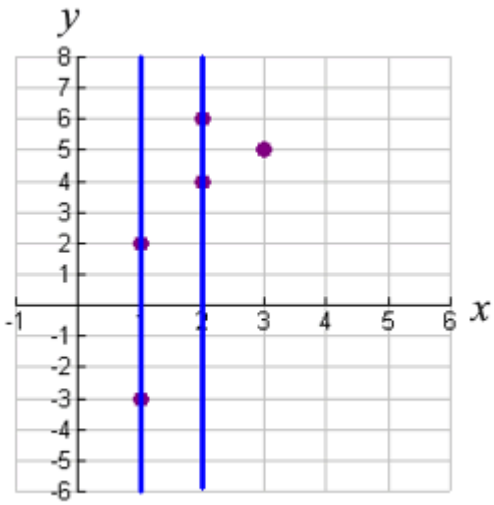
Relation. A relation is simply a set of ordered pairs.

A relation can be any set of ordered pairs.

No special rules need apply.

An example of a relation: {(1,2),(2, 4),(3, 5),(2, 6),(1, -3)}

The graph shows that a vertical line may intersect more than one point in a relation.

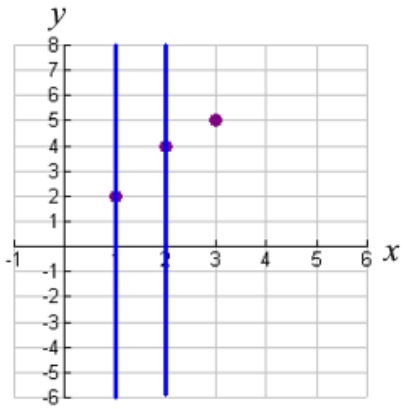


The relation "height indicates name" is not well-behaved. It is not a function. Given the relationship (x,y) = (five-foot-five person, name), there might be six different possibilities for y = "name". For a relation to be a function, there must be *only and exactly* one y that corresponds to a given x. This is the main differences between relation and function.

Function. A function is a set of ordered pairs in which each x-element has only ONE y-element associated with it.

The relation above can be altered to become a function by removing the ordered pairs where the x-coordinate is used twice. function: {(1,2), (2,4), (3,5)}

The graph shows that a vertical line intersects only ONE point in a function. This is called the vertical line test for functions.


y
x
8
7
6
5
4
3
2
1
-1
-2
-3
-4
-5
-6
-1
1
2
3
4
5
6