Functions Unit

Mr Melody

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Vocabulary

Ordered Pair- Used to show the position on a graph, where the x(horizontal) value is first and the y(vertical) value is second. Example (4,8), where 4 is the x value and 8 is the y value.

Input- a value placed into a variable of an eqaution.

Ex y= 2x + 5, y= w 2(3) + 5 y =11, 3 is the input

Output-The value that occurs due to an input

Ex y= 2x + 5, y= w 2(3) + 5 y =11, 11is the output

Domain- all the values that go into a Function(inputs)

Illuatrated Display

Expression- One or more mathematical symbols put togehter to form a value. Ex 6+ 4, , 5 + 9 -4

vocabulary

Verbal Expression- Translating an expression into words

Ex. add 5 to x, 5 more than the product of 3 and x

Equation- a mathematical statement that contains an eqaul sign to show that 2 mathematical statements are true. Ex $4 + 6 = 10$ $y = 4x + 3$

Function- Where each input has only one output

Illustrated Display

Graph of a Function- The set of all the points on a coordinate plane whose coordinates make the rule of the function true.

Illustrated Display

Vocabulary

Range- The set of outputs of a Function

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Relation- Any set of inputs and outputs

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What is a Function

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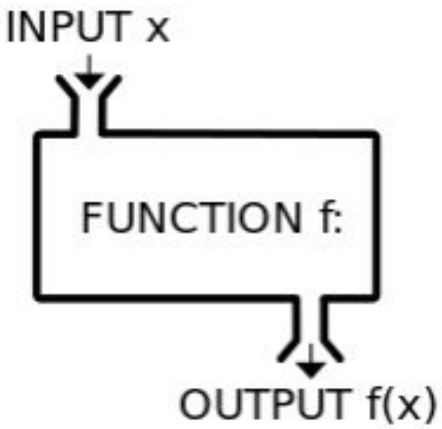
For every input, there is only one output

Always remember all Functions are relations, but not all relations are functions. A function can only have one output for each input. In a relation, an input can have more than one output.

For every input(x), there is only one output (y)



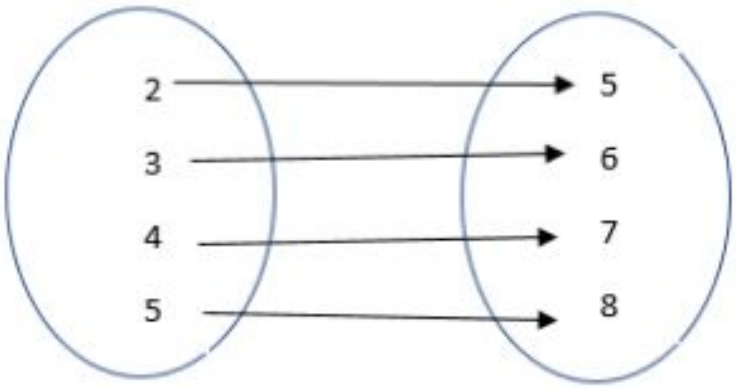
Types of Functions

There are several different types of functions that you will see

1. Set of ordered pairs , where the x (input does not repeat), and y(output) (x,y)

(0,3), (1, 5) (2, 7) (3, 9)

2. Set of ordered pairs, but with the inputs and outputs seperated in differet circles and connected by an arrow, Again the x does not repeat, each x only has one arrow going to output y



Types of Functions

3. Set Notation: WHere are the inputs (x)are placed in one set and all the outputs(y) are placed in another set

{ 1,3,5,7,9} (2,4,6,8,10}

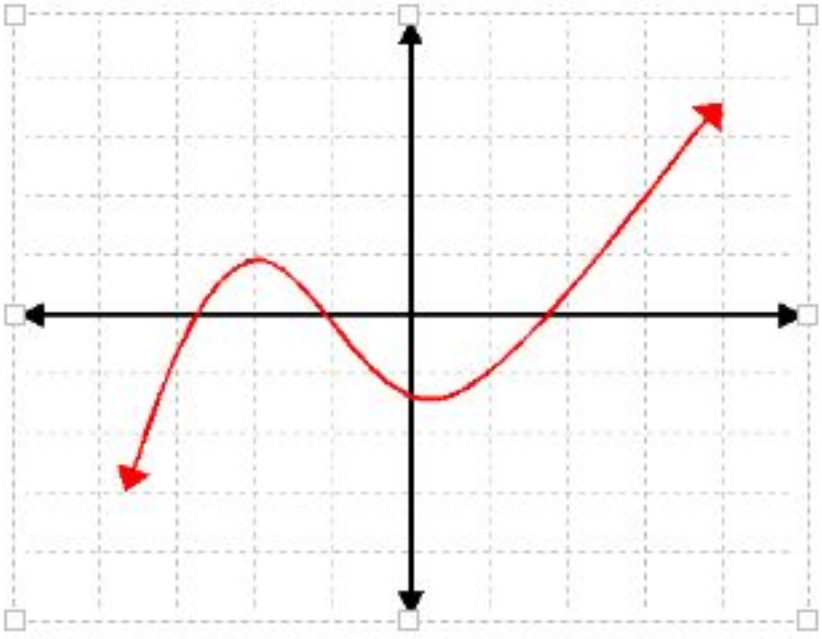
.

4 Input, Output box. Input X uses a rule to get output y

X	Rule :Multiply by 5	y
5		25
8		40
10		50
12		60
20		100

Types of Functions

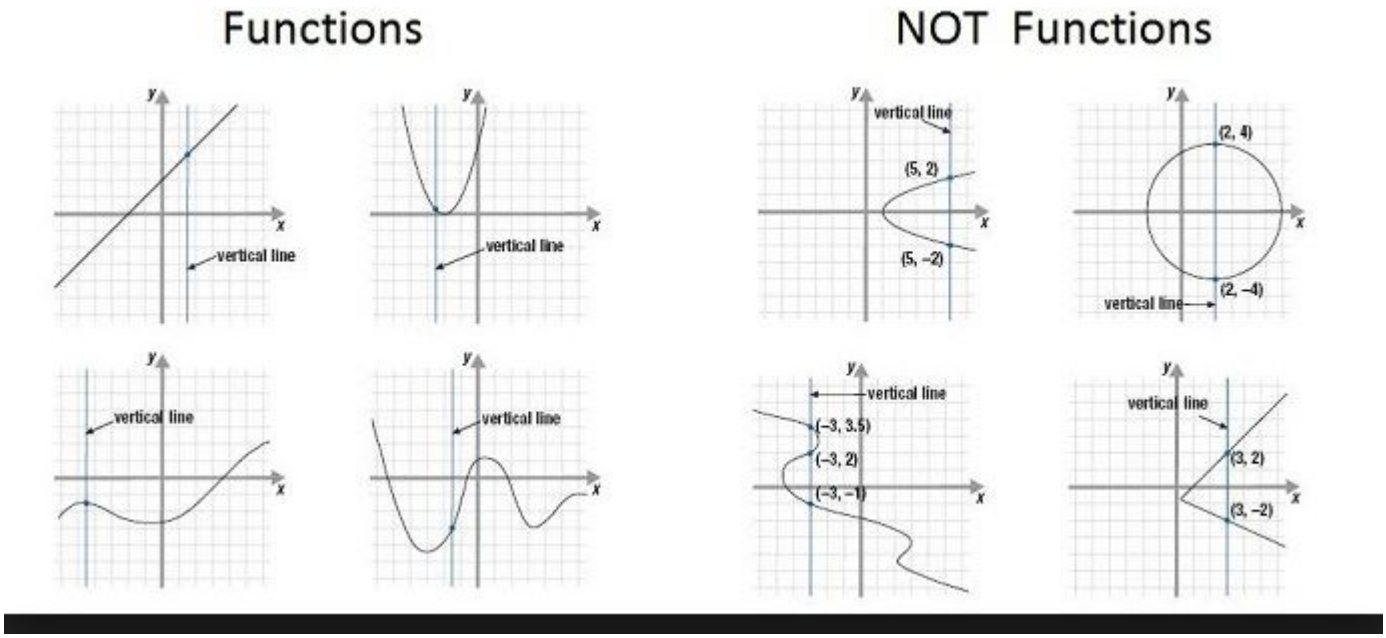
5. Graph of the Function- The inputs and outputs have been placed on a graph. The line of the graph only passes through an x coordinate once. You can use the vertical line test to check to make sure it is a function.



Vertical Line Test

The Vertical Line Test is a visual way to determine if a curve is a graph of a function or not. A function can only have one output, y, for each unique input, x.

If you can draw a vertical line on a graph and it hits only one point, , it is a function. If you can draw a vertical line anywhere on a graph and it can hit more than one point on a graph, then it is not a function



[Vertical Line Test You Tube VIdeo]

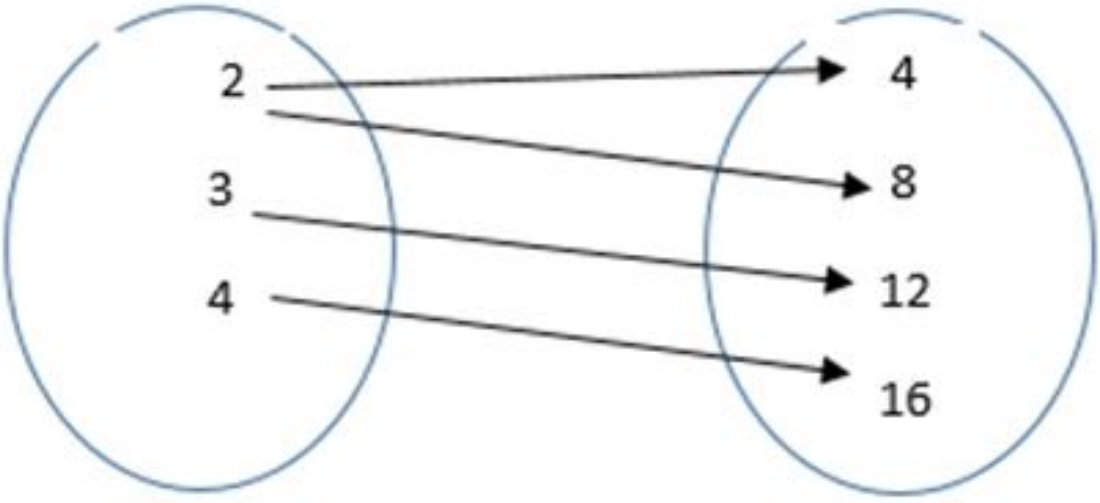
Which ones are Functions 1

Decide if each one is a function, click on each link at end to see of you were right

1. (2, 3) (4, 6) (6, 9) (8, 12)

2. (1, 2) (2, 2) (3, 2) (4,2) (5,2)

3. (1, 1) (1, 2) (1,3) (1,4)

4. 

Link to answers

Which ones are Functions 1 answers

Decide if each one is a function, click on each link at end to see of you were right

1. (2, 3) (4, 6) (6, 9) (8, 12)

Function, for each input, there is only one output

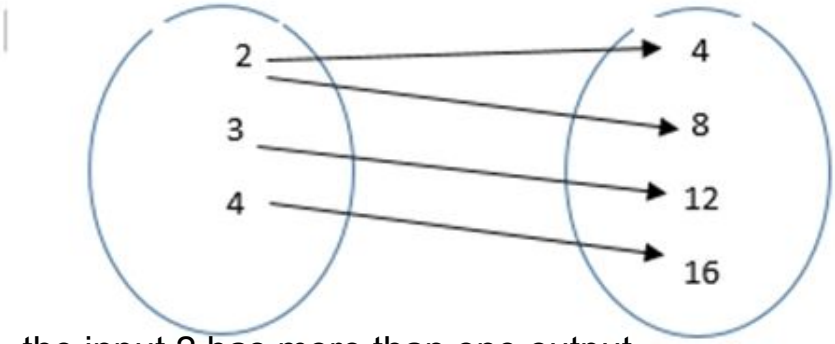
2. (1, 2) (2, 2) (3, 2) (4,2) (5,2)

function, even though the outputs repeat the inputs do not

3. (1, 1) (1, 2) (1,3) (1,4)

Not a Function, Each input has more than one output

4.



Not a function, the input 2 has more than one output.