

Algebra 1 - 3.1 Functions

The following formula will convert temperature from Degrees Fahrenheit to Celsius. Use it to answer the following questions.

$$\text{Celsius Temp} = \frac{5}{9} * (\text{Fahrenheit Temp} - 32)$$

1. What is 85°F in Celsius?

$$C = \frac{5}{9} \cdot (85 - 32) = \frac{5}{9} (53) = 29.\bar{4} \text{ } ^\circ\text{C}$$

2. What is 24°F in Celsius?

$$\frac{5}{9} (24 - 32) = \frac{5}{9} (-8) = -4.\bar{4}$$

3. Given the answer from #2, is it possible for 24°F to be any Other degree amount in celsius? Why?

No. a single temp. in Fahrenheit will
Always Give a single temp. in Celsius

The idea is that for every degree amount in °F, there is a single value it will be in °C. This idea is what a Function is...

3.1 Functions

A Relation pairs inputs and outputs.

Use the previous example to make some relation pairs of inputs/outputs...

°F	°C
85	29.̄4
24	-4.̄4

$(85, 29.\bar{4})$
 $(24, -4.\bar{4})$

If every input has exactly One output, then the relation is a Function.

Remember that each °F would only ever convert to a single °C

3.1 Functions

Look at the relation table (AKA Input/Output chart) to determine if the relation is a Function.

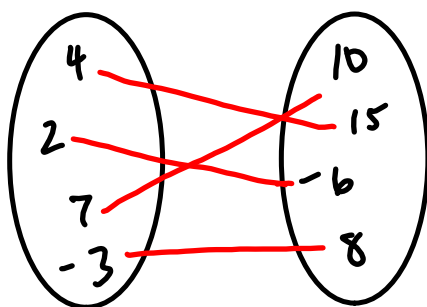
Ex:

Input	-3	-1	1	3	-1
Output	12	18	24	30	36

See -1 outputs to both 18 & 36? NOT A function

Question to ask: Is there any input number that goes to Multiple outputs??? if so, its Not a function!

Ex 2: input output



is a
function

3.1 Functions

The variable we typically use for **Input is x** , and the variable we typically use for **Output is y** .

Ex: Is the relation a function? If not, explain why.

$(4, 0), (7, 7), (6, 4), (4, 3), (5, 2)$

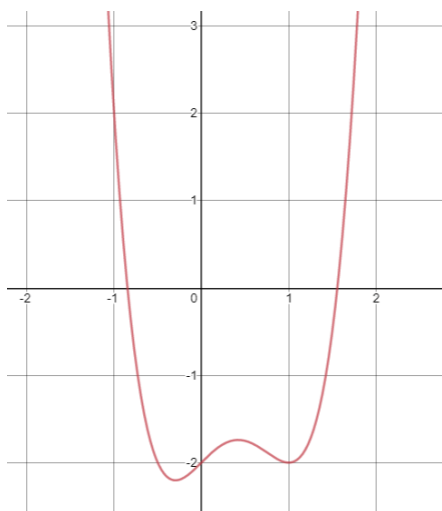
The input of
4 outputs to 0 & 3.

NOT a function!

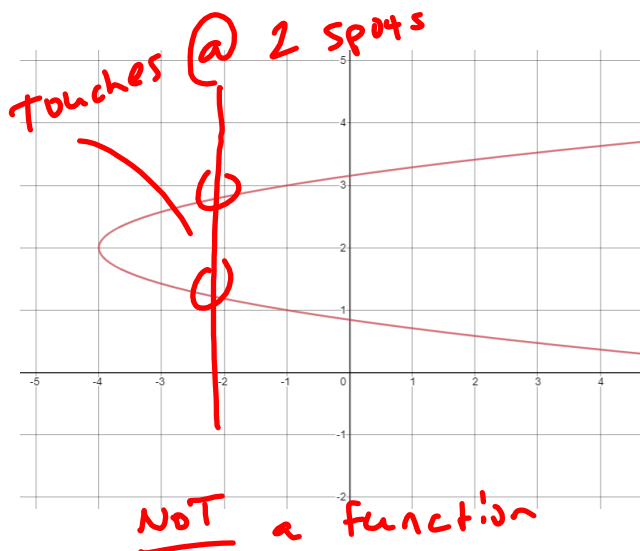
3.1 Functions

Vertical Line Test Given a graphed line/curve, if you can draw a vertical line anywhere that will intersect the curve at more than one point, it is Not a function.

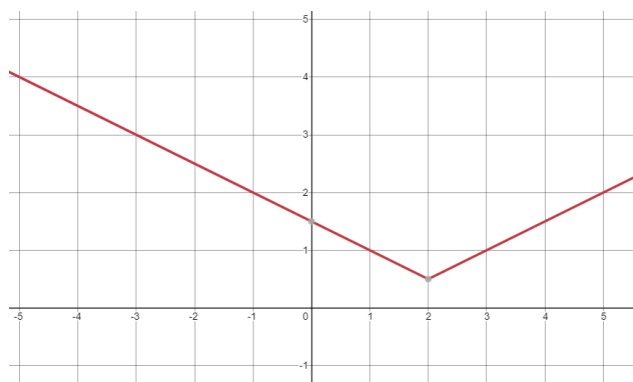
Ex: Determine if the following graphed curves are functions.



is A function



NOT a function

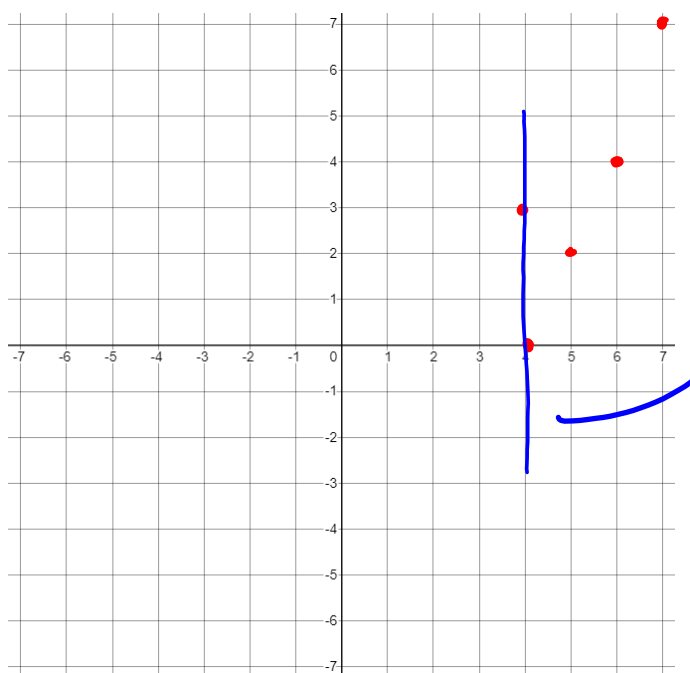


is A function

3.1 Functions

Take the relation from two slides ago. You could graph these points and determine that it would fail the vertical line test, and therefore Not be a function.

$(4, 0)$, $(7, 7)$, $(6, 4)$, $(4, 3)$, $(5, 2)$



NOT
A function

see how
at
this spot
a vertical
line touches 2
points?

3.1 Functions

Homework:

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Numbers 1-12