1.7 Functions

Exploring functions:

You can think of a function as a box with a **special rule**... **stuff goes in the box**... and **stuff comes out of the box**.

In math terms here is what is happening...

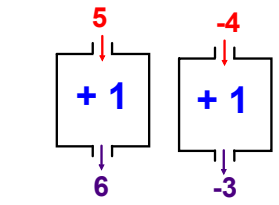
The stuff that goes **IN** the box (the **INPUT**) is called the **DOMAIN** and is your **INDEPENDENT** variable. ⟶ *ALWAYS THE X VALUE*

The stuff that comes **OUT** of the box (the **OUTPUT**) is called the **RANGE** and is your **DEPENDENT** variable. ⟶ *ALWAYS THE Y VALUE*

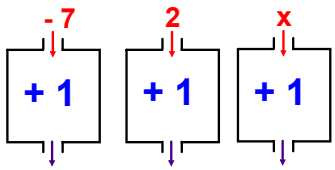
The **SPECIAL RULE** is called a **FUNCTION**.

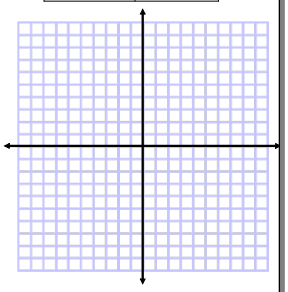
Feb 19-12:55 PM

Rule: Add one



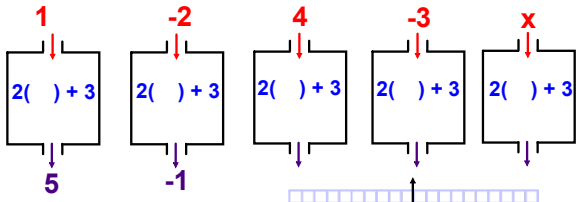
input	output
5	6
-4	-3
-7	
2	
x	





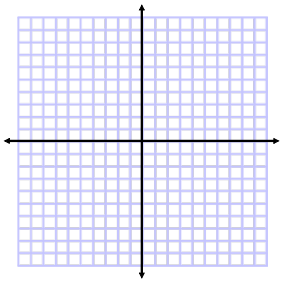
Feb 19-1:19 PM

Rule: Times two plus three



input	output
1	5
-2	-1
4	
-3	
x	

Function Rule:



Feb 19-1:28 PM

The set of ordered pairs in a function is called a **relation**. A relation is the pairing of a **domain (x)** value with a **range (y)** value.

A **function** is a relationship that pairs an input value with an output value. In a function, ***each input can have one and only one output***.

FUNCTION!

x	y
2	8
-3	5
0	-9
8	14

not a function

x	y
1	-7
-3	8
9	2
1	3

Feb 19-5:52 PM

State whether the data in each table represents a function. Then list the domain and range.

1.

x	y
2	2
4	3
6	4
8	5

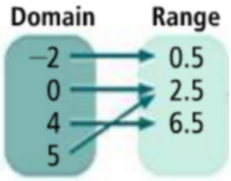
2.

x	y
3	4
5	-9
8	7
3	-4

Oct 2-2:57 PM

Tell whether the pairing is a function.

a)



b) $\{(4.2, 1.5), (5, 2.2), (7, 4.8), (4.2, 0)\}$

Feb 19-6:32 PM

Make a table for the function. Identify the range.

$y = -1.5x + 4$
Domain: 1, 2, 3, 4

$f(x) = 4x - 12$
Domain: 1 , 3 , 5 , 7

Oct 2-3:04 PM

Write a rule for the function.

A.

x	y
0	3
1	5
2	7
3	9

B.

x	y
0	1
1	-4
2	-9
3	-14

Feb 19-7:29 PM

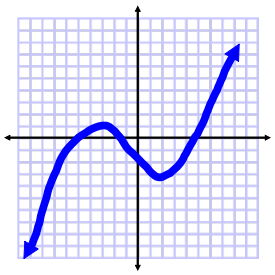
Write a rule for the given function.

x	0	1	2	3	4
y	12	13	14	15	16

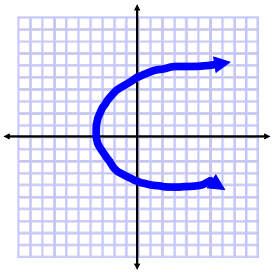
Feb 19-7:38 PM

Since a **function** is a relationship that pairs an x value with **only one** y value.
You can use the **vertical line test** to see if the graph is a function. If a vertical line goes through a graph more than once, it is not a function.

Function

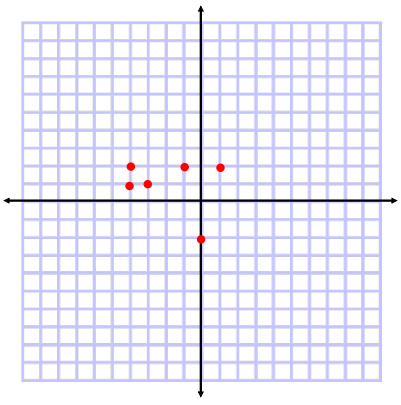


Not a function



Sep 20-11:55 AM

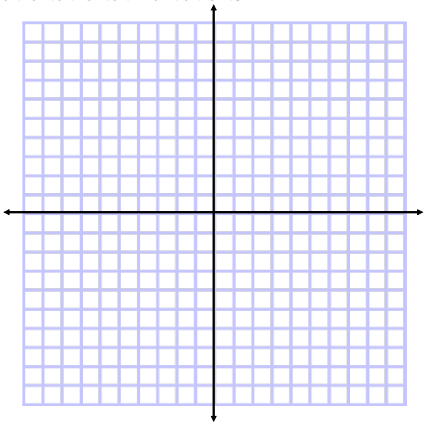
Is this a function?



Feb 19-6:44 PM

Is the relation a function? Use the vertical line test.

B. $\{(4, 2), (1, 2), (0, 1), (-2, 2), (3, 3)\}$



Sep 29-1:40 PM

Classwork: **p.44 #2 - 20 even**

p.56 #2 - 8 even

Copy the question.

Final Five

Write the rule for the given function.

Camera Memory

Number of Photos, x	Memory (MB), y
0	512
1	509
2	506
3	503

Sep 29-1:49 PM