DECEMBER 13, 2011

Get out your notes – no homework due today

12/13 - Relations and Functions

Definition of ***Relation:*** a set of points

Relation {(2,-5) , (4,31) , (11, -11), (-21, 3) }

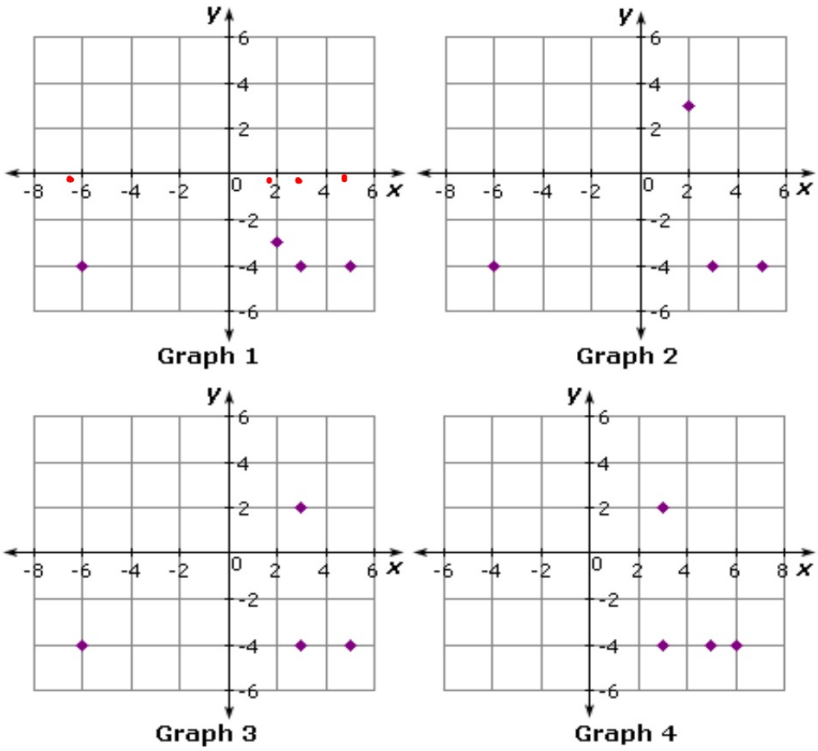
X-values → **Domain:** 2 4 11 -21

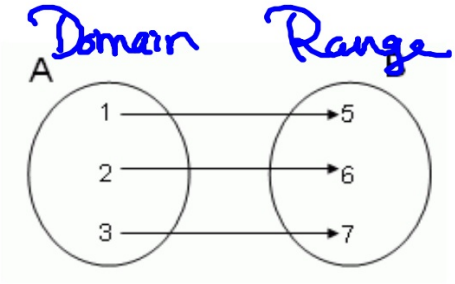
y-values → **Range** -5 31 -11 3

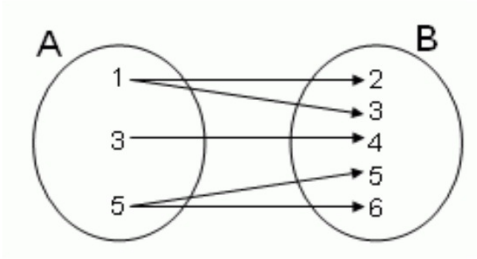
Graph 1

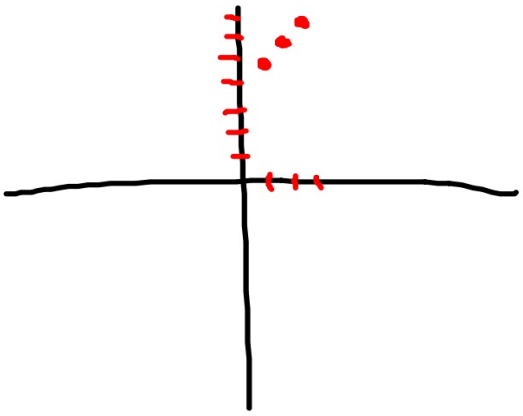
Domain:
-6, 2, 3, 5

Range:
-3, -4



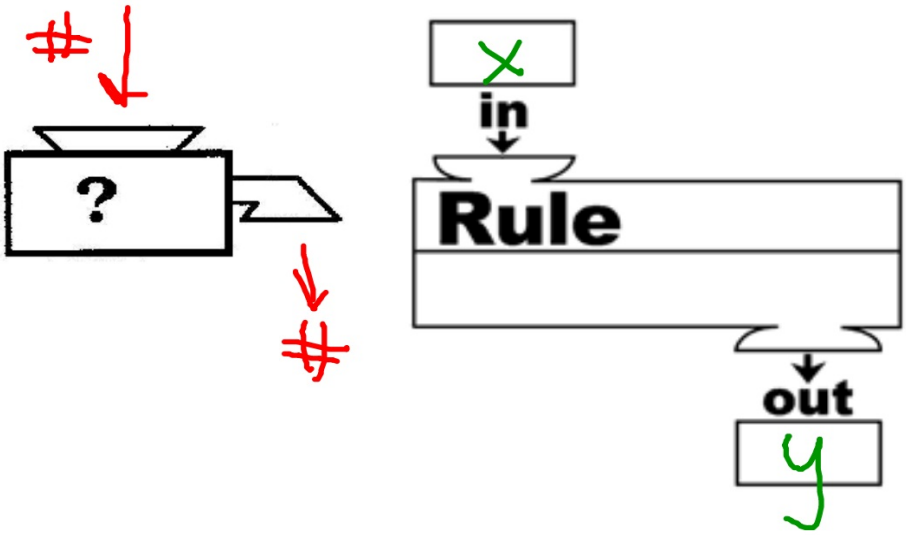

Domain
Range
A
B
1
2
3
5
6
7


A
B
1
3
5
2
3
4
5
6



*Definition of **Function:***

A relation such that for every domain value, (x)
there is exactly one range value. (y)



Function?

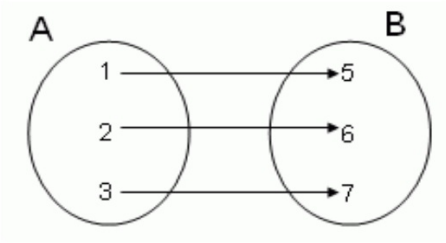
Relation {(2,-5) , (4,31) , (11, -11), (-21, 3) }

Domain: 2 4 11 -21

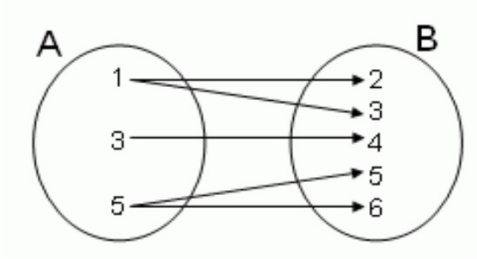
Range -5 31 -11 3

Yes, No x-value is repeated with different y-values

Functions?



yes

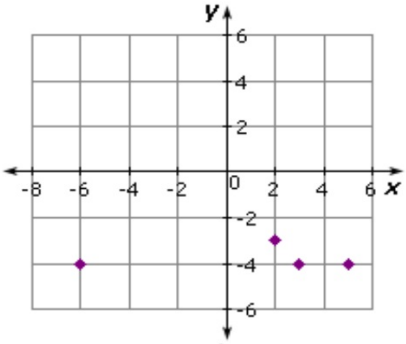


no
because both
1 and 5 have
2 separate values
they go to.

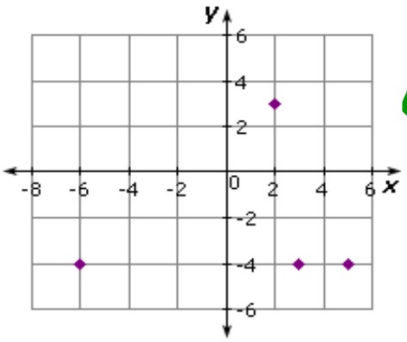
Functions?

Vertical Line Test for functions

yes



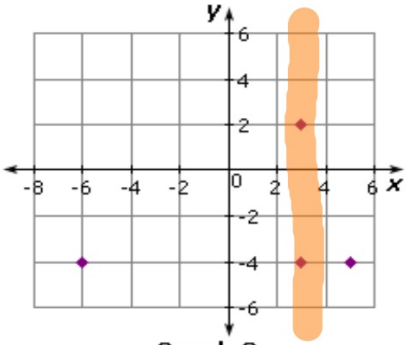
Graph 1



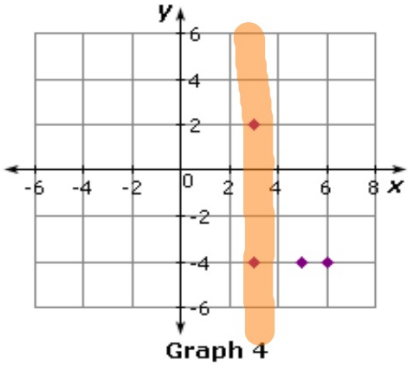
Graph 2

yes

no



Graph 3



Graph 4

no

Function notation:

$$f(x) \text{ is said } "f \quad of \quad x"$$

It does NOT mean "f times x"

$$f(x) = 2x - 3$$

It replaces ***y*** in equations.

Evaluate the function for the given values of x

$f(x) = 2x - 3 \;\; for \;\; x = -3$

$f(-3) = 2(-3) - 3$

$= -6 - 3$

$= -9$

$f(x) = -x^2 \;\; for \;\; x = 4$

$f(4) = -4^2$

$= -16$

$f(x) = \sqrt{2x^3} \;\; for \;\; x = -2$

$f(-2) = \sqrt{2(-2)^3}$

$= \sqrt{2 \cdot -8}$

$= \sqrt{-16}$

$= 4i$

HOMEWORK:

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Due Wednesday