Today's Plan:

Learning Target (standard): I will graph functions and find the domain and range of them. I will determine if a function is one-to-one.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

p.395 #18-32 even * Go over graphs at your tables! *

$18) D: \mathbb{R}$

$R: \mathbb{R}$

$20) D: \mathbb{R}$

$R: \{y \mid y = -1\}$

$22) D: \mathbb{R}$

$R: \{y \mid y \geq 2\}$

$24) D: \mathbb{R}$

$R: \mathbb{R}$

$26) D: \mathbb{R}$

$R: \{y \mid y = -3\}$

$28) D: \mathbb{R}$

$R: \{y \mid y \leq 0\}$

$30) D: \mathbb{R}$

$R: \{y \mid y \leq 0\}$

$32) D: \mathbb{R}$

$R: \mathbb{R}$

Graph. State domain and range.

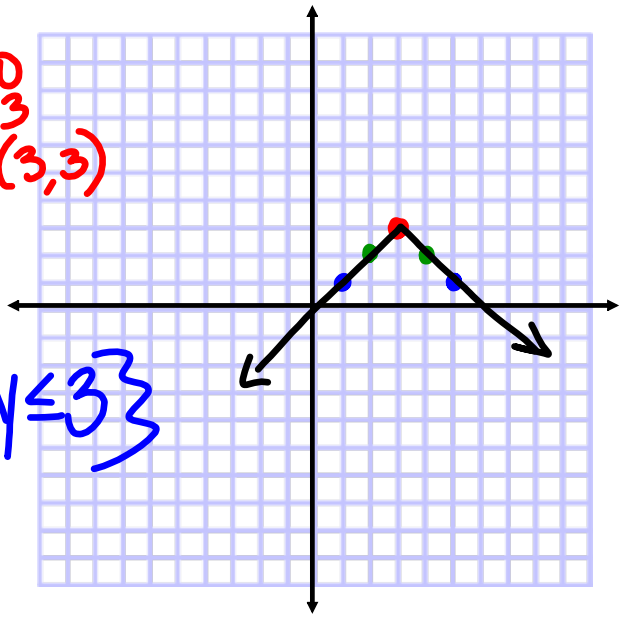
$$f(x) = -|3 - x| + 3$$

$3-x=0$
$x=3$
vertex: $(3,3)$

x	y
1	1
2	2
3	3
4	2
5	1

D: $\mathbb{R}$

R: $\{y \mid y \leq 3\}$



Graph. State domain and range.

$f(-1) = 1-2-4$

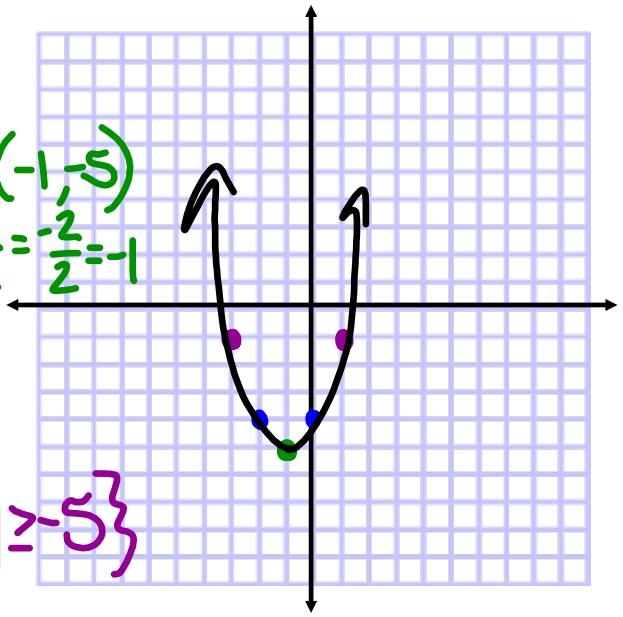
$$f(x) = x^2 + 2x - 4$$

vertex: $(-1,-5)$
$x = \frac{-b}{2a} = \frac{-2}{2} = -1$

x	y
-3	-1
-2	-4
-1	-5
0	-4
1	-1

D: $\mathbb{R}$

R: $\{y \mid y \geq -5\}$



Graph. State domain and range.

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

$f(-2) = -8 + 6$

$f(-1) = -1 + 3$

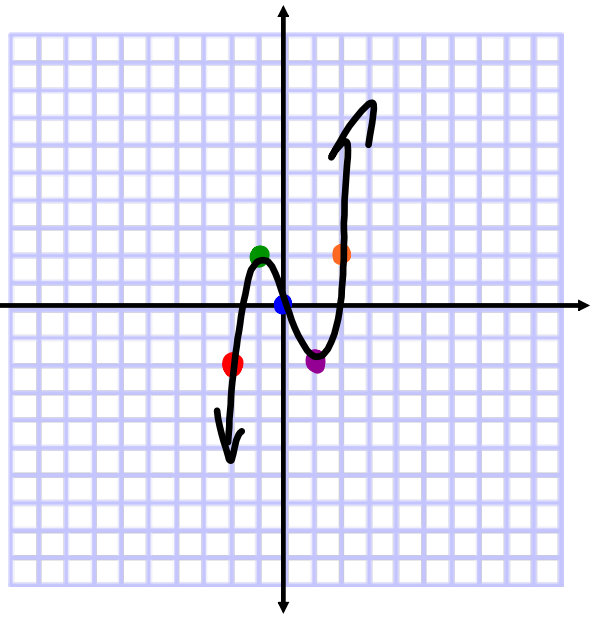
$f(1) = 1 - 3$

$f(2) = 8 - 6$

x	y
-2	-2
-1	2
0	0
1	-2
2	2

D: ℝ

R: ℝ



Describe a function. Be sure to provide an example to support your description.

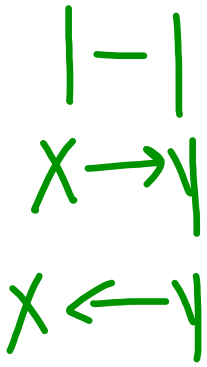
- A function is a relation between two values (x & y) so that for any x-value there is only one y-value
- a y-value can have more than one x-value
- A function has a domain that is the set of x-values that can be substituted into the function producing real y-values

  Possible exclusions:
  - negative under a radical
  - 0 in the denominator

- A function has a range that is the set of y-values that can be produced by evaluating the function at the x-values in its domain

One-to-One Functions (1-1):

- in order for a relation to be a function, the property has to hold that for any one x-value there is only one possible y-value
- in order for a relation to be a one-to-one function, it first must be a function and then it must have the property that for any one y-value, there is only one x-value



Function or Relation??? Why?

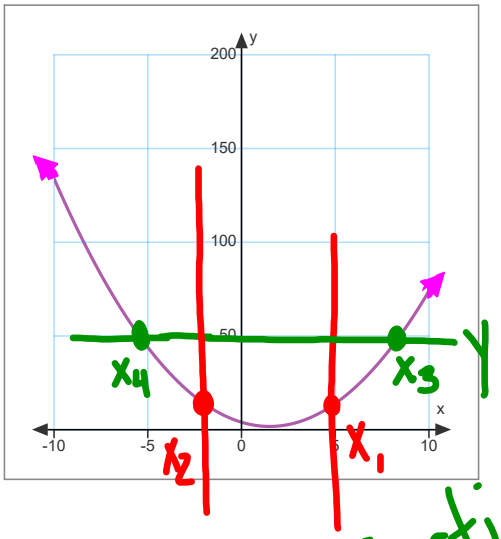
$\{(2,3),(4,2),(-2,6),(2,7)\}$

Relation - the x-value of 2 has more than one y-value

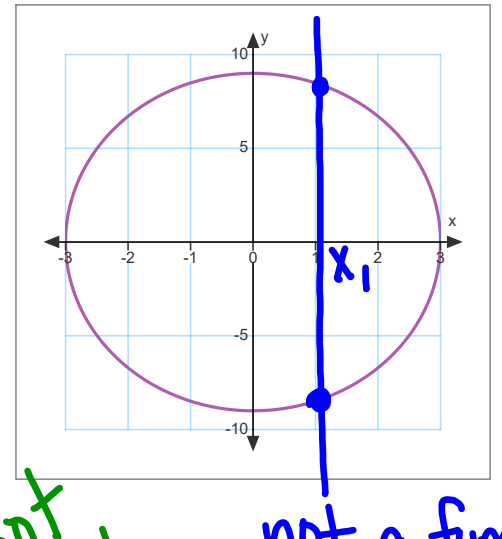
$\{(3,4),(2,4),(5,29),(6,5)\}$

Function - every x-value has only one y-value

Function or Relation??? Why?

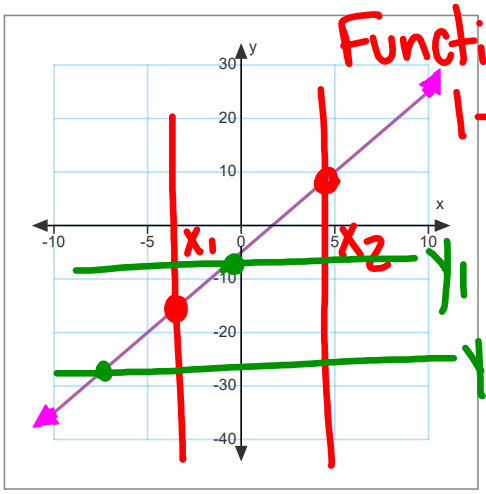


Function, but not 1-1

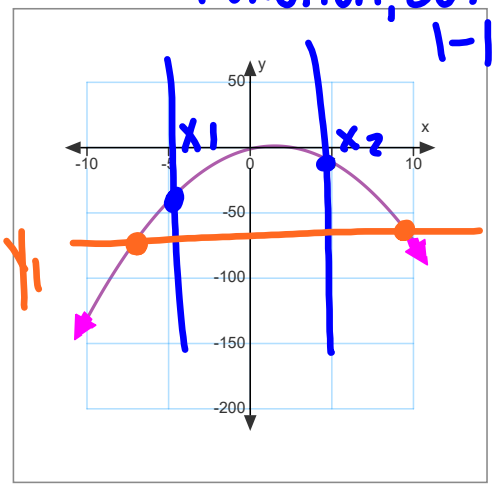


not a function

One-to-One???? Why?



Function ! 1-1



Function, but not 1-1

One-to-One???? Why?

$\{(1,3),(-2,4),(-4,-5),(2,4)\}$

Function? yes - every x has only 1y

1-1? no - when y=4, there are 2 different x's

$\{(-4,8),(3,11),(6,6),(12,29)\}$

Function? yes - every x has only 1 one

1-1? yes - every y has only one x

Assignment:

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