## Do Now:
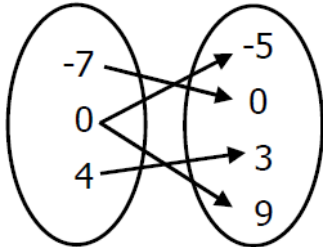
Which of the following represents a function? How do you know this?

1. {(-5, 0), (-3, 2), (0, 4), (2, -7)}

*Yes it is a function no repeating x-values*

2.

*Not a function because the x-value of "0" (is repeated) has two outputs.*

Dec 2-9:12 AM

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## Homework Answers

1a. *f(4) = 1*

   *f(-1) = 6*

 b. x = 1 & 3

2b. x = -7, -5, -1, 3, 5
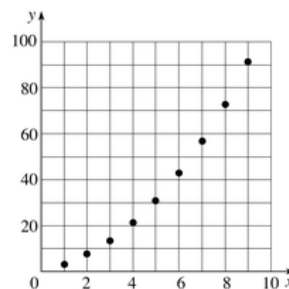
2a. *f(-2) = -3*

   *f(-8) = -3*

   *f(8) = 3*

   *f(4) = -1*

Nov 28-6:34 AM

# Domain and Range of Functions

## Discrete/Discontinuous function

- allows the x-values to be only certain points in the interval, usually only integers or whole numbers
- the graph of a discrete function consists of separate points

## Continuous function

- allows the x-values to be ANY points in the interval, including fractions, decimals, and irrational values.
- Graph is "unbroken".  You can draw without lifting your pencil.
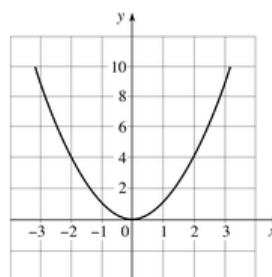
Nov 28-7:28 AM

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**To find the domain and range for a <u>discontinuous/discrete</u> graph:**

Use **set notation** and list all x-values (domain) and y-values (range)
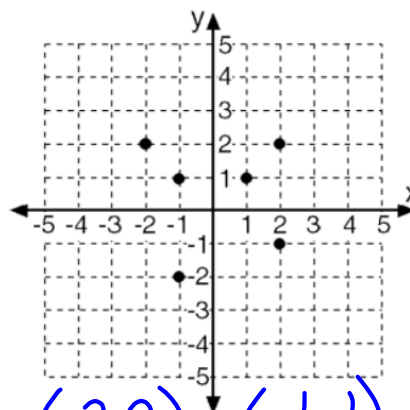
1) State the Domain

$$D = \{-2, -1, 1, 2\}$$

2) State the Range

$$R = \{2, 1, -1, -2\}$$

3) Is the relation a function?

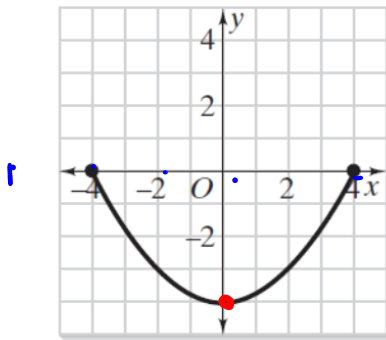No there are repeating x-values & it does not pass the vertical line test.

$(-2,2), (-1,1), (1,1)$
$(2,2), (2,-1), (-1,-2)$

Dec 2-9:12 AM

**To find the domain and range for a <u>continuous</u> graph:**

Use *inequalities* or *interval notation* to represent <u>ALL</u> x-values (domain) and <u>ALL</u> y-values (range)
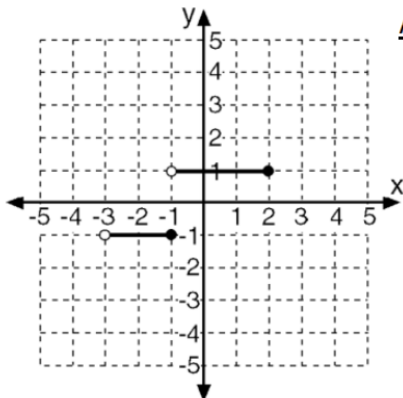
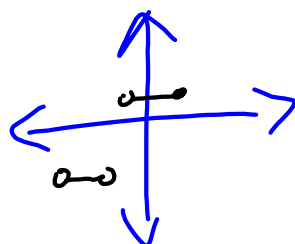|  | Interval | Inequality |
|---|---|---|
| Domain: | $[-4, 4]$ | $-4 \le x \le 4$ |
| Range: | $[-4, 0]$ | $-4 \le y \le 0$ |

Dec 2-9:12 AM

**To find the domain and range for a <u>Step   Function</u> graph:**

Use *inequalities* or *interval notation* to represent <u>ALL</u> x-values (domain) and <u>ALL</u> y-values (range)

|  | Interval | Inequality |
|---|---|---|
| Domain: | $(-3, 2]$ | $-3 < x \le 2$ |

Range:

$$R = \{-1, 1\}$$

$$(-3, -1) \text{ AND } (-1, 2]$$
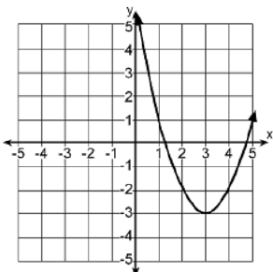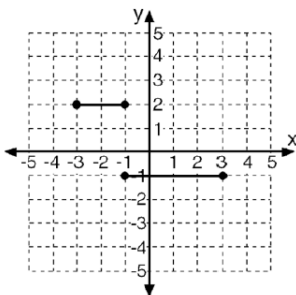
Dec 2-9:12 AM

## Practice

State the domain and range for each graph and then tell if the graph is a function (write yes or no).
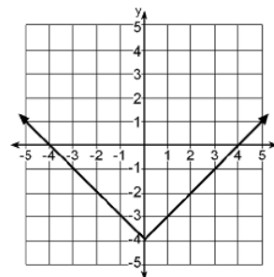
1) Domain $(-\infty, \infty)$

Range $[-3, \infty)$

Function? Yes

2) Domain $[-3, 3]$

Range $R = \{-1, 2\}$

Function? NO

3) Domain $(-\infty, \infty)$

Range $[-4, \infty)$

Function? yes

Dec 2-9:12 AM

**4**