Properties of a Function

Domain & Range

Domain - the set of first elements in a relation

(x - values)

Range - the set of second elements in a relation

(y - values)

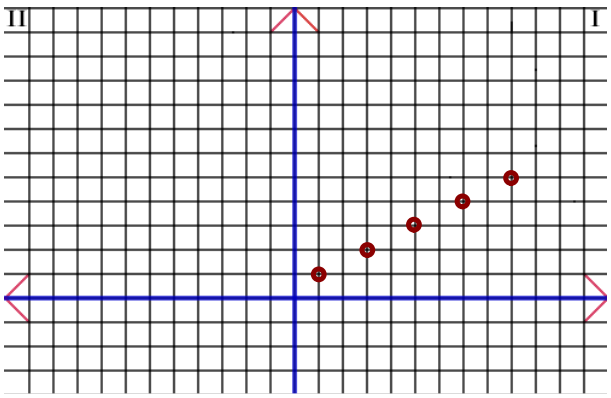
Sport	Equipment
badminton	shuttlecock
badminton	racquet
hockey	puck
hockey	stick
tennis	ball
tennis	racquet
soccer	ball

First **Second**

(Sport, Equipment)

Domain The set of first elements:
{ badminton, hockey, tennis, soccer}

Range The set of second elements:
{ shuttlecock, racquet, puck, stick, ball}



Remember!!

(x , y)

Ordered Pairs:

1st 2nd 1st 2nd 1st 2nd 1st 2nd 1st 2nd

{ (1,1) , (3, 2) , (5, 3) , (7, 4) , (9, 5) }

Domain The set of first elements: { 1, 3, 5, 7, 9}

Range The set of second elements: { 1, 2, 3, 4, 5}

Function or Nonfunction

Function:

A relation where each element in the first set is associated with one and only one element in the second set. (x's can't repeat)

x y

Sport	Equipment
badminton	shuttlecock
badminton	racquet
hockey	puck
hockey	stick
tennis	ball
tennis	racquet
soccer	ball

x's repeat

Function or Nonfunction

{ (2, 5), (3,7) , (4, 2) , (2, 6) , (8,0) }

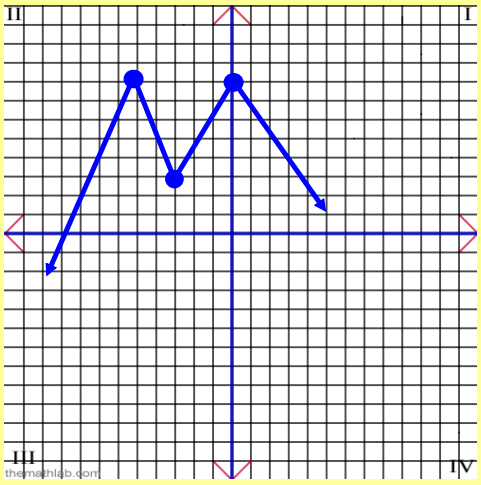
Function or Nonfunction

Function or Nonfunction

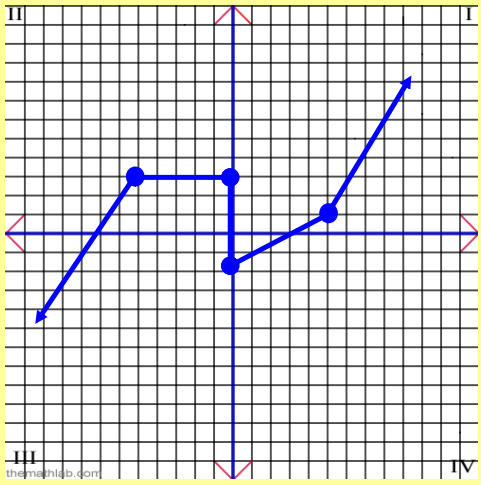
Use the vertical line test!!

!

Function

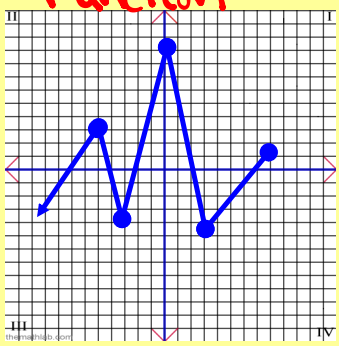


Non-Function

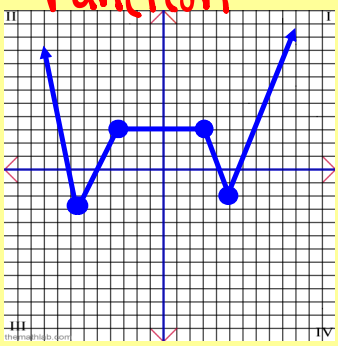


Function or Nonfunction

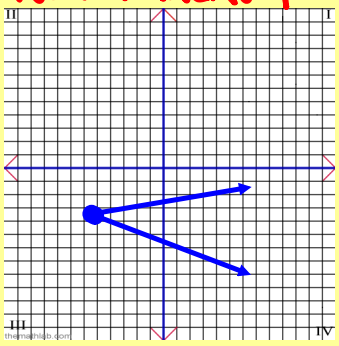
Function



Function



Non-Function



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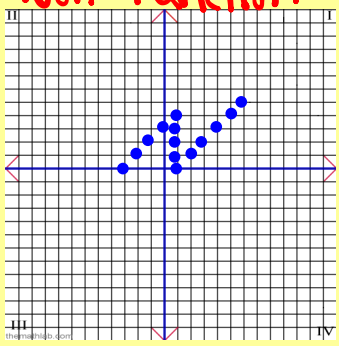
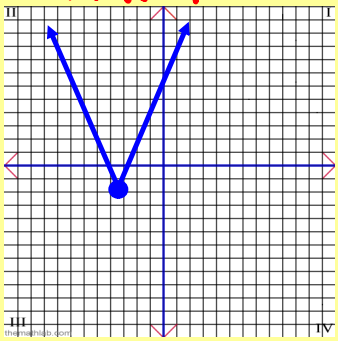
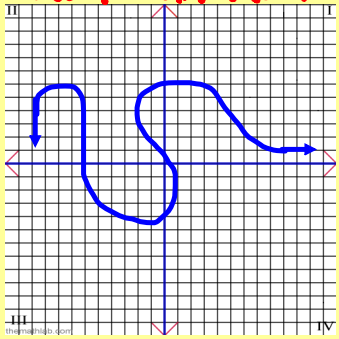
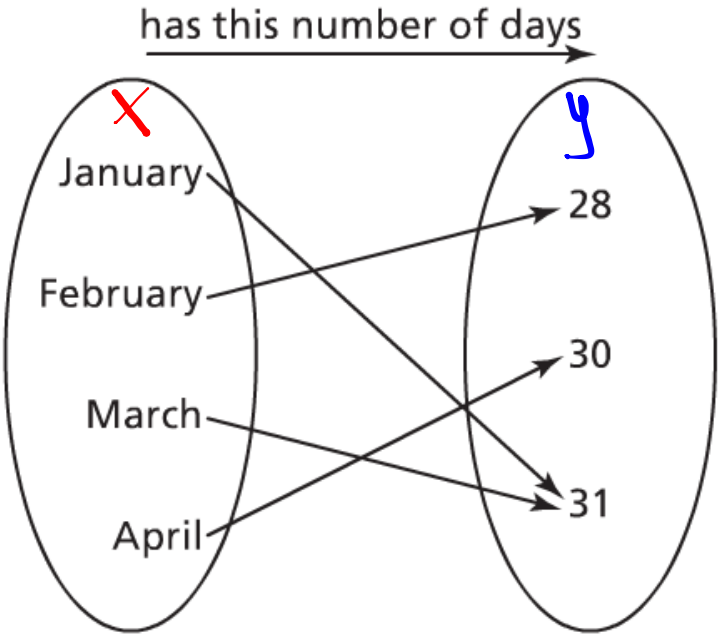


Function



Non-Function





Function or Nonfunction

Domain: {January, February, March, April}

Range: {28, 30, 31}

Independent / Dependent

Dependent - a variable whose value is determined by the value of another(independent) variable. (y-value)

Independent - a variable whose value is not determined by the value of another variable, and whose value determines the value of another (dependent) variable

(x-value)

Independent Variable

- Hours do not depend on the person's pay.

Dependent Variable

- A person's pay often depends on the number of hours worked.

Hours Worked, h (x)	Gross Pay, P ($) (y)
1	12
2	24
3	36
4	48
5	60

Hours Worked, h (x)	Gross Pay, P ($) (y)
1	12
2	24
3	36
4	48
5	60

Let's write the function notation

$$P(h) = 12h$$

What is the person's pay after 20 hours?

$$P(20) = 12(20)$$
$$= \$240$$

Examples: $f(x) = 3x+2$

$y = 3x+2$

Try This!!

Number of Marbles, n (x)	Mass of Marbles, m (g) (y)
1	1.27
2	2.54
3	3.81
4	5.08
5	6.35
6	7.62

a) State the domain & Range.
b) Is this relation a function?
c) State the dependent and independent variables.
d) Write the function notation.

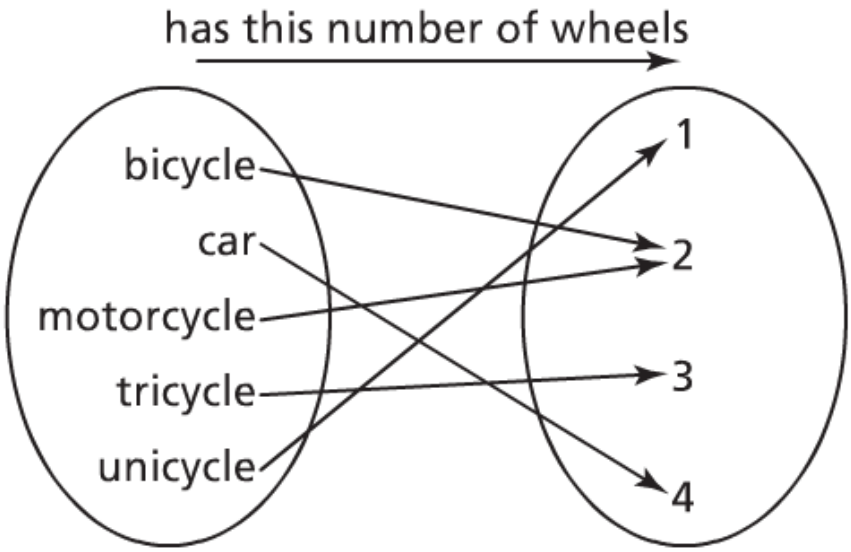
Solution:

a) Domain: {1, 2, 3, 4, 5, 6}
Range: {1.27, 2.54, 3.81, 5.08, 6.35, 7.62 }

b) Function (x's do not repeat)

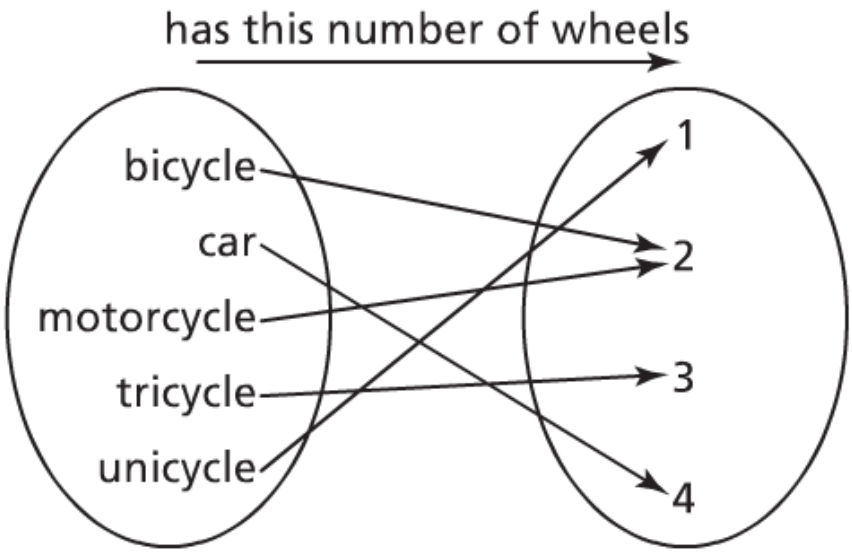
c) Independent - Number of marbles (x)
Dependent - Mass of marbles (y)

d) M(n) = 1.27n



Domain The first set of elements:
{bicycle, car, motorcycle, tricycle, unicycle}

Range The second set of elements:
{1, 2, 3, 4}



Function or Nonfunction

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