Lesson #16- Functions & Relations
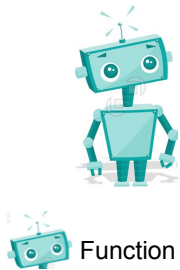
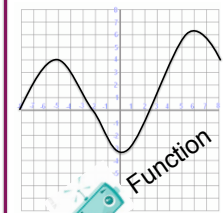Meet Mr. Function   Meet Mrs. Relation

Function   Relation

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(1) Graph - Vertical Line Test

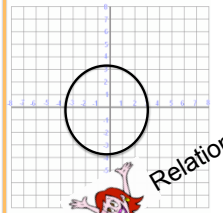Function __YES__   Function __NO__

Function   Relation

A vertical line touches the curve at ONLY 1 spot at a time

A vertical line touches MORE THAN 1 spot at a time.

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(2) Table of Values

Function __YES__

x	y
0	2
1	4
3	6
5	8

Function __NO__

x	y
1	0
2	1
4	3
4	5

Function   Relation

Each x value has only ONE y value.
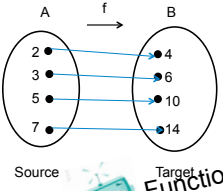
An x value has MORE THAN ONE y value

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(3) Mapping Diagram

Function YES

A   f →   B

2 • • 4
3 • • 6
5 • • 10
7 • • 14
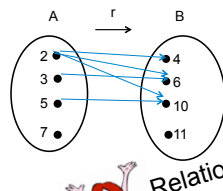
Source   Target Function

Function NO

A   r →   B

2 • • 4
3 • • 6
5 • • 10
7 • • 11

Relation

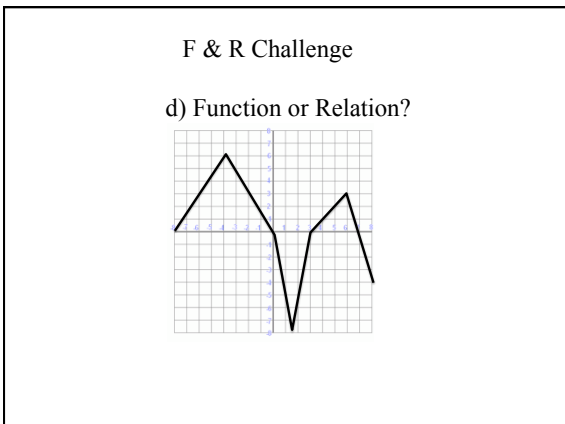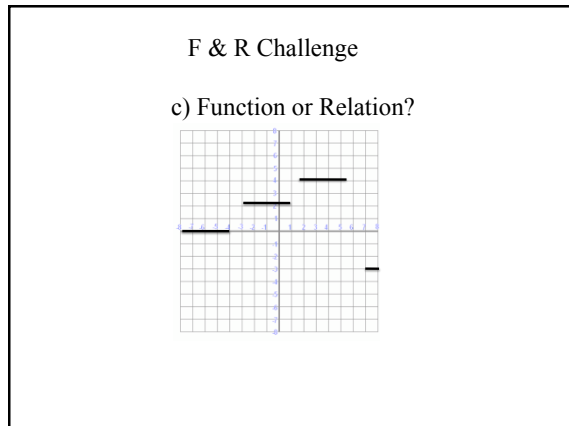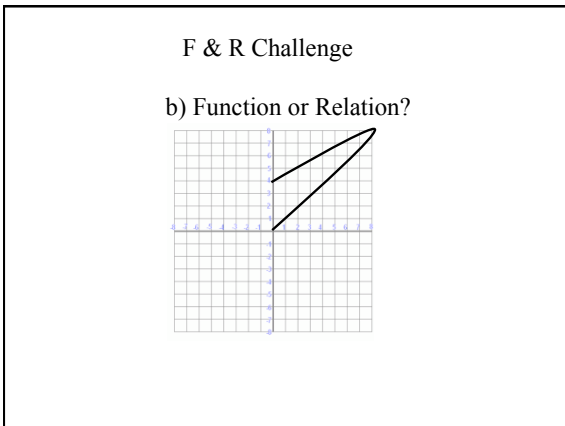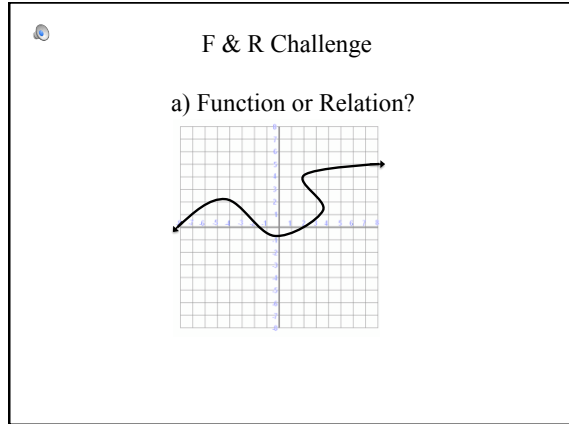Each source value has only ONE target value

A source value has MORE THAN ONE target value

What is a Function?

A *function* is an operation that follows a RULE. It takes an input and produces only 1 output for that given input.

What is a Relation?

A *relation* is an operation which takes an input and may produce multiple outputs for a given input, but it may not.

Function or Relation
Challenge

F & R Challenge

a) Function or Relation?

F & R Challenge

b) Function or Relation?

F & R Challenge

c) Function or Relation?

F & R Challenge

d) Function or Relation?
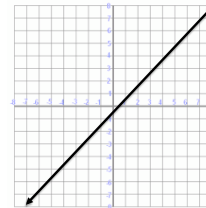
F & R Challenge

e) Function or Relation?
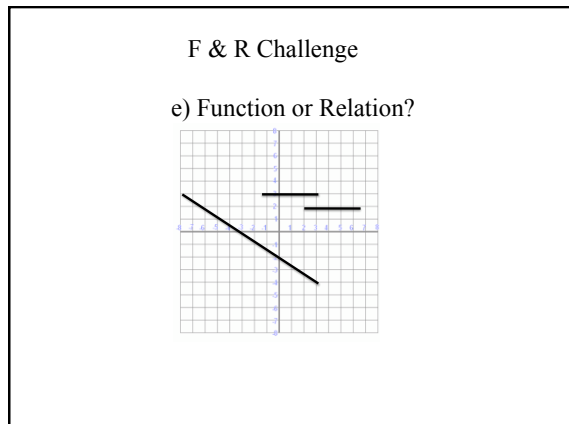
F & R Challenge

f) Function or Relation?
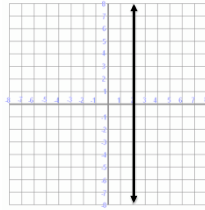
F & R Challenge

g) Function or Relation?

x	y
1	4
1	5
3	5
4	6

F & R Challenge

h) Function or Relation?

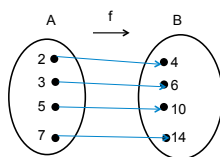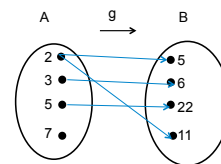| x	y
1	3
2	5
3	5
4	6

F & R Challenge

i) Function or Relation?

F & R Challenge

j) Function or Relation?

F & R Challenge

k) Function or Relation?

F & R Challenge

l) Function or Relation?

x	y
1	3
1	5
3	5
4	6

Function and Relation Challenge

a) R
b) R
c) F
d) F
e) R
f) R
g) R
h) F
i) F
j) F
k) R
l) R

a)
b)
c)
d)
e)
f)

Using a FUNCTION is like using a blender.

Input

Output

Orange   Blender   Orange Juice

Input - x	$f(x) = 2x + 1$	Output – f(x)
2	$f(2) = 2(2) + 1$	5
3	$f(3) = 2(3) + 1$	7
0	$f(0) = 2(0) + 1$	1

Math Gods

Pronounce f(x) as "f of x"
The brackets DO NOT
mean multiply.

Evaluate the following functions

a) f(x)=3x+5   find f(3)

  f(4)=3(4) + 2
    =14

b) g(x)=x^2 +1   find g(6)
  g(4)=(6)^2 +1
    = 37

c) r(x)=(x-2)(x-5)   find r(6)

  R(6)=(6-2)(6-5)
    = (4)(1)
    = 4

Homework

pg 92 Act 1
pg 94 #2,3 & Act 3
pg 95 #4-6