Friday, September 16, 2016 7:33 AM

Lesson 5.2
Domain and Range
Identify Functions
Common Point of 2 Functions

Goal: To solve equations/inequalities in math and real world context and to write rules for arithmetic sequence.

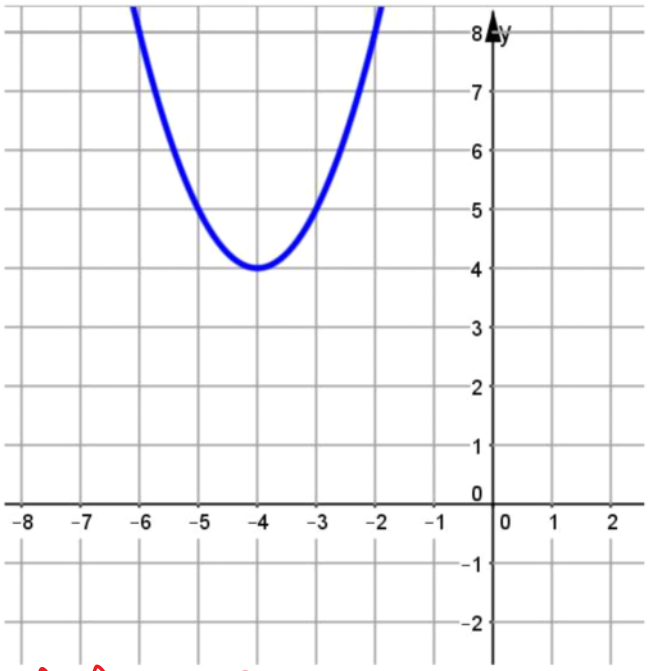
SWBAT determine if a table, graph, and equation is a function.
SWBAT to identify domain and range.

SWBAT interpret domain restriction within real world context.
SWBAT find a common point of two functions.

Friday, September 16, 2016 7:33 AM

Problem 1:

- State the domain and range in inequality notation.
- Domain: $-\infty < x < \infty$
- Range: $y \geq 4$
- Function? Justify your answer. function



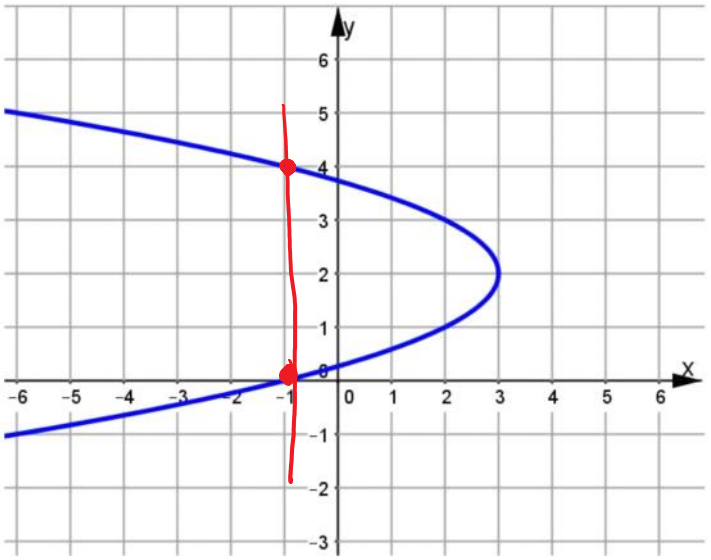
Range ≥ ≤

Friday, September 16, 2016 7:33 AM

Problem 1a:

- State the domain and range in inequality notation.

(-1, 4)
(-1, 0)

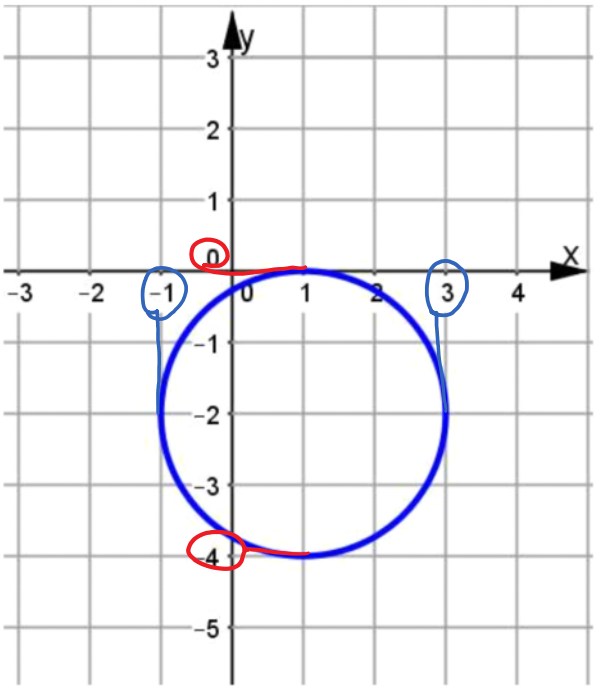


- Domain: $x \leq 3$
- Range: $-\infty < y < \infty$
- Function? Justify your answer. Not a function

Friday, September 16, 2016 7:33 AM

Problem 1b:

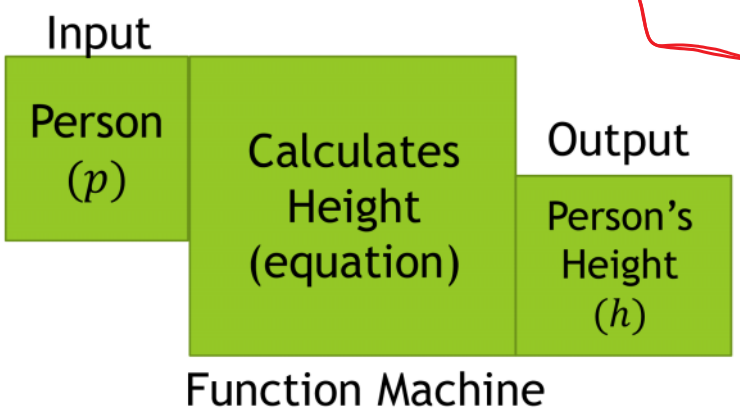
- State the domain and range in inequality notation.
- Domain: $-1 \leq x \leq 3$
- Range: $-4 \leq y \leq 0$
- Function? Justify your answer. Not a function



Friday, September 16, 2016 7:33 AM

Function Notation

$f(x), g(x), C(m), P(k), etc$ is a notation that help us distinguish between different functions. Basically a naming system for functions. However the notation also has mathematical meaning.



The Function Notation

$h(p)$ → Output (y)

Input

Friday, September 16, 2016 7:33 AM

Problem 2:

- Billy has saved \$3 and will earn \$4 per day. Jimbo has saved \$9 and will earn \$2 per day. How many days will it take them to have the same amount of money?
- Create a table and compare. Do you notice anything?

$b(d) = 3 + 4d$

d	$b(d)$
1	7
2	11
3	15
4	19

$b(1) = 3 + 4(1)$

$3 + 4$

$b(1) = 7$

$j(d) = 9 + 2d$

d	$j(d)$
1	11
2	13
3	15
4	17

$j(1) = 9 + 2(1)$

$9 + 2$

$j(1) = 11$

Friday, September 16, 2016 7:33 AM

Problem 2:

- Since $b(d)$ and $j(d)$ are both outputs (y), you can set them equal to each other. Then solve for the input d to find the common point, instead of creating tables.

$b(d) = 3 + 4d$ $\quad$ $j(d) = 9 + 2d$

$y = 3 + 4d$ $\quad$ $y = 9 + 2d$

$y = y$

$b(d) = j(d)$

$3 + 4d = 9 + 2d$

$-2d \quad -2d$

$3 + 2d = 9$

$-3 \quad -3$

$2d = 6$

$\frac{2d}{2} = \frac{6}{2}$

$d = 3$

$b(3) = 3 + 4(3)$

$3 + 12$

$b(3) = 15$

$j(3) = 9 + 2(3)$

$9 + 6$

$j(3) = 15$

Common point

$(3, 15)$

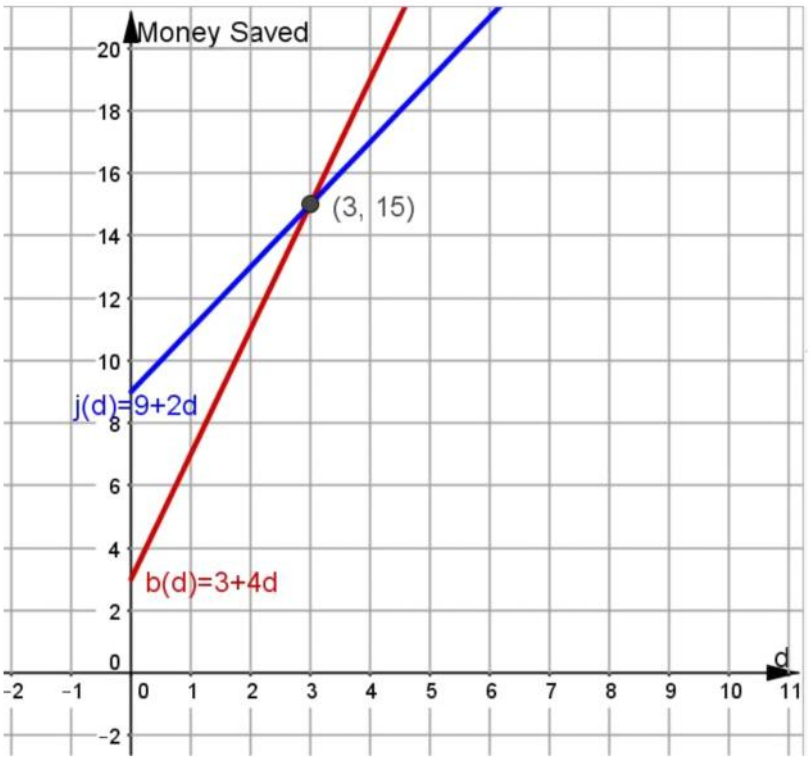
$d \quad b(d)$

$x \quad j(d)$

y

Problem 2:

The situation graphically



Friday, September 16, 2016 7:33 AM

Problem 2a:

- Given $f(x) = 3x + 2;\ g(x) = -x + 10$
- Find the value of x for which $f(x) = g(x)$.

$g(2) = -2 + 10$

$g(2) = 8$

$f(x) = g(x)$

$3x + 2 = -x + 10$

$+x \qquad +x$

$4x + 2 = 10$

$-2 \quad -2$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$

$f(x) = 3x + 2$

$f(2) = 3(2) + 2$

$6 + 2$

$f(2) = 8$

common point

$(2, 8)$

$x \quad y$

$f(x)$

$g(x)$

Friday, September 16, 2016 7:33 AM

Problem 2b:

- Given $f(x) = 2x - 4$; $g(x) = x + 2$
- Find the value of x for which $f(x) = g(x)$.
- Then find the value of y.

Problem 2c:

- Given $f(x) = 2x - 1$; $g(x) = -x + 2$
- Find the value of x for which $f(x) = g(x)$.
- Then find the value of y.

Problem 2d:

- Given $f(x) = 5x - 2$; $g(x) = 4x - 3$
- Find the value of x for which $f(x) = g(x)$.
- Then find the value of y.