Warm Up

- Evaluate each function for the given values.

1. $f(x) = 3x - 8$, find $f(-2)$ $f(-2) = -14$

2. $f(x) = 11x - 4x^2$, find $f(3)$ $f(3) = -3$

3. $f(x) = \frac{-15x+21}{3}$, find $f(-3)$ $f(-3) = 22$

Warm Up

- Determine which relation has the greater rate of change.

$$y = \frac{3}{4}x + 4$$

x	y
-6	1
0	5
3	7

Warm Up

- Determine the function rule for the relation

x	y
7	12
9	8
11	4
13	0

$$f(x) = -2x + 26$$

More Function Notation

- When notating a function, *f* is most commonly used. However, with some contextual problems, or when labeling a different function, letters *g, h,* and others are sometimes used.

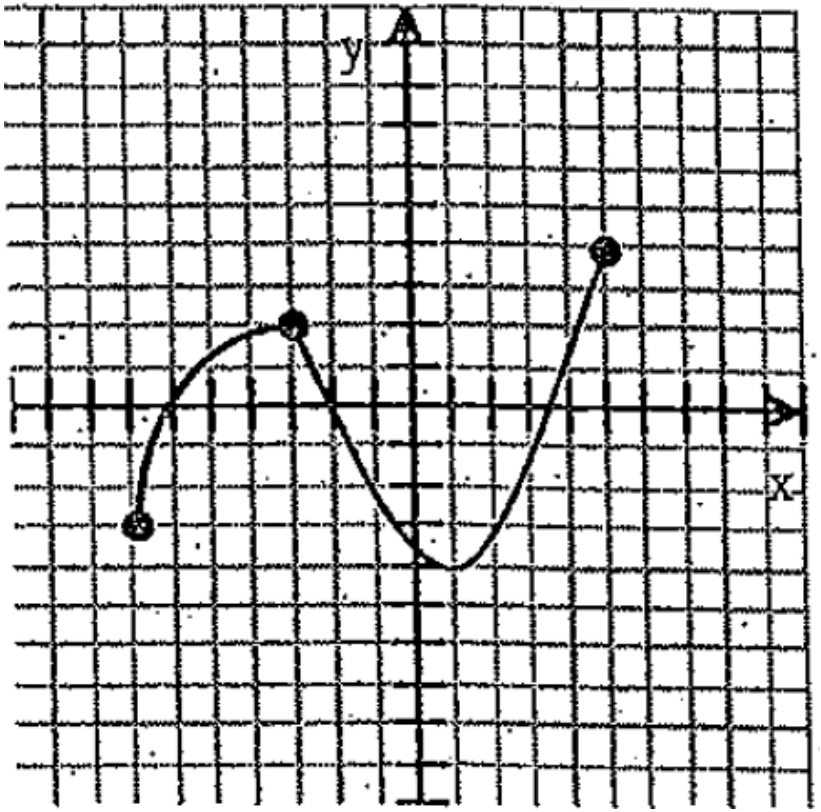
- Example. Suppose $h(x) = \frac{1}{x}$, and $g(x) = x^3$
  Find $h(2)$ and $g(4)$

$$h(2) = \frac{1}{2}$$

$$g(4) = 64$$

Warm Up

- Determine if the relation is a function and determine its domain and range.



Function

Domain: $-7 \leq x \leq 5$

Range: $-4 \leq y \leq 4$

Math 8C
Unit 4 – Day 5

Standards:

- ✓ Determine if a relation is a function and determine its domain and range.
- ✓ Use function notation to express a function

Evaluating Functions

- The height (in meters) of a projectile at t seconds can be modeled by the function

$$h(t) = -4.9t^2 + 60t + 1.2$$

- Find the height of the projectile 4 seconds after it is fired.

$$h(4) = -4.9(4)^2 + 60(4) + 1.2$$

$$h(4) = -78.4 + 240 + 1.2$$

$$h(4) = 162.8$$

162.8 meters high

Evaluating Functions

- We can do cool things to functions besides finding their value for a certain *x*.

- Example: If $f(x) = 3x + 7$, find $2f(x)$.

"Two times $f(x)$"

$$2f(x) = 2(3x + 7)$$

$$2f(x) = 6x + 14$$

What If?

- What if the input value for a function wasn't a number?
- Could you still evaluate the function?
  - Example: Suppose $g(x) = 7 - 2x$. Find $g(a)$

$$g(a) = 7 - 2a$$

Example

- Suppose $f(x) = \frac{2x}{5}$, $g(x) = x^2 - 4$, and $h(x) = 1 - 2x$. Evaluate the following and simplify

1. $f(yz)$ $\quad f(yz) = \frac{2yz}{5}$

2. $h(a + b)$ $\quad h(a + b) = 1 - 2a - 2b$

3. $2g(x)$ $\quad 2g(x) = 2x^2 - 8$

4. $h(x) + 5$ $\quad h(x) + 5 = 6 - 2x$

You Try!

- Suppose $f(x) = 2x^3 - 12$ and $g(x) = -4x + 1$ Evaluate the following and simplify.

1. $g(h + k)$ $g(h + k) = -4h - 4k + 1$

2. $-3f(x)$ $-3f(x) = -6x^3 + 36$

Given $f(x)$, find x

- If $f(x) = -2x + 6$, can you find x if $f(x) = -24$?

$$-24 = -2x + 6$$

$$-30 = -2x$$

$$15 = x$$

- You Try! Find x if $f(x) = 18$.

$$x = -6$$

In Class Practice

U_4D_5 - ICP