Inspiring Greatness

INDEPENDENCE SCHOOL DISTRICT

Math Virtual Learning

Algebra 2A

Function Notation

April 6, 2020

Lesson: April 6, 2020

Objective/Learning Target:
Students will recognize and use function notation.

Warm up:

1. Write down everything you can remember about function notation.

2. Evaluate the expressions.
   a. $3(5+2)$
   b. $1+7^2$

Answer Key

Warm up:

1. Write down everything you can remember about function notation.

Answers will vary

2. Evaluate the expressions.
   a. $3(5+2)$ **= 21**
   b. $1+7^2$ **= 50**

Lesson:

Definition: Function Notation

1. written as f(x)
2. Pronounced: “f of x”
3. Means: “the value of f at x”
4. Indicates x is the variable in the function
5. We can use letters other than f (such as g or h)

This is a new way for us to name our functions.

How you used to write functions: $y =$...

The new way to write functions: $f(x) =$..., $g(x) =$..., $h(x) =$...,

Everything works the same as with "$y =$..."; domain, range, graphing, tables,...

Question: So why is this way better if the two notations work the same?

Answer: With function notation we can identify between two different functions.

Example

$$f(x) = 3x + 1 \qquad \text{and} \qquad g(x) = -7x$$

Now I can talk about either function f or function g and you won't get confused about which I'm talking about.

How do you use function notation?

Example 1: Given an x-value, find the value of $f(x)$.

$f(x) = 2x - 5$ find $f(4)$

Note: remember this is the same thing as $y = 2x - 5$. Simply replace x in the equations with (4).

If $f(x) = 2x - 5$, then $f(4) = 2(4) - 5 = 3$

Example 2: Given an x-value, find the value of $g(x)$.

$g(x) = -10x^2 + x$ find $g(3)$

Note: Replace every x in the equations with (3). The parenthesis are going to be very important for this problem

If $g(x) = -10x^2 + x$, then $g(3) = -10(3)^2 + (3) = -10(9) + 3 = -87$

How do you use function notation?

Example 3: Given an x-value, find the value of $f(x)$.

$f(x) = 2x - 5$ find $f(4x)$

Note: Replace every x in the equations with (4x).

If $f(x) = 2x - 5$, then $f(4x) = 2(4x) - 5 = 8x - 5$

Now you try!

Evaluate the functions below

a) $f(x) = -5x + 1$
Find $f(3)$

b) $g(x) = 10x - 35$
Find $g(7x)$

c) $h(x) = \frac{3}{5}x$
Find $h(-25)$

d) $k(x) = x^2 - 4x - 5$
Find $k(3)$

Now you try!

Answer Key

Evaluate the functions below

a) $f(x) = -5x + 1$
Find $f(3)$

f(3) = -14

b) $g(x) = 10x - 35$
Find $g(7x)$

g(7x) = 70x - 35

c) $h(x) = \frac{3}{5}x$
Find $h(-25)$

h(-25) = -15

d) $k(x) = x^2 - 4x - 5$
Find $k(3)$

k(3) = -8

Additional Practice

Click the link for additional practice evaluating functions.

Then, check your answers on the second page.