What's Going On?

Checking In

Minds on Frayer Models

Action! Function Notation

Consolidation Function Creation

Learning Goal - I will be able write equations in proper function notation and substitute numerical values and algebraic expressions into functions.

What's happening at

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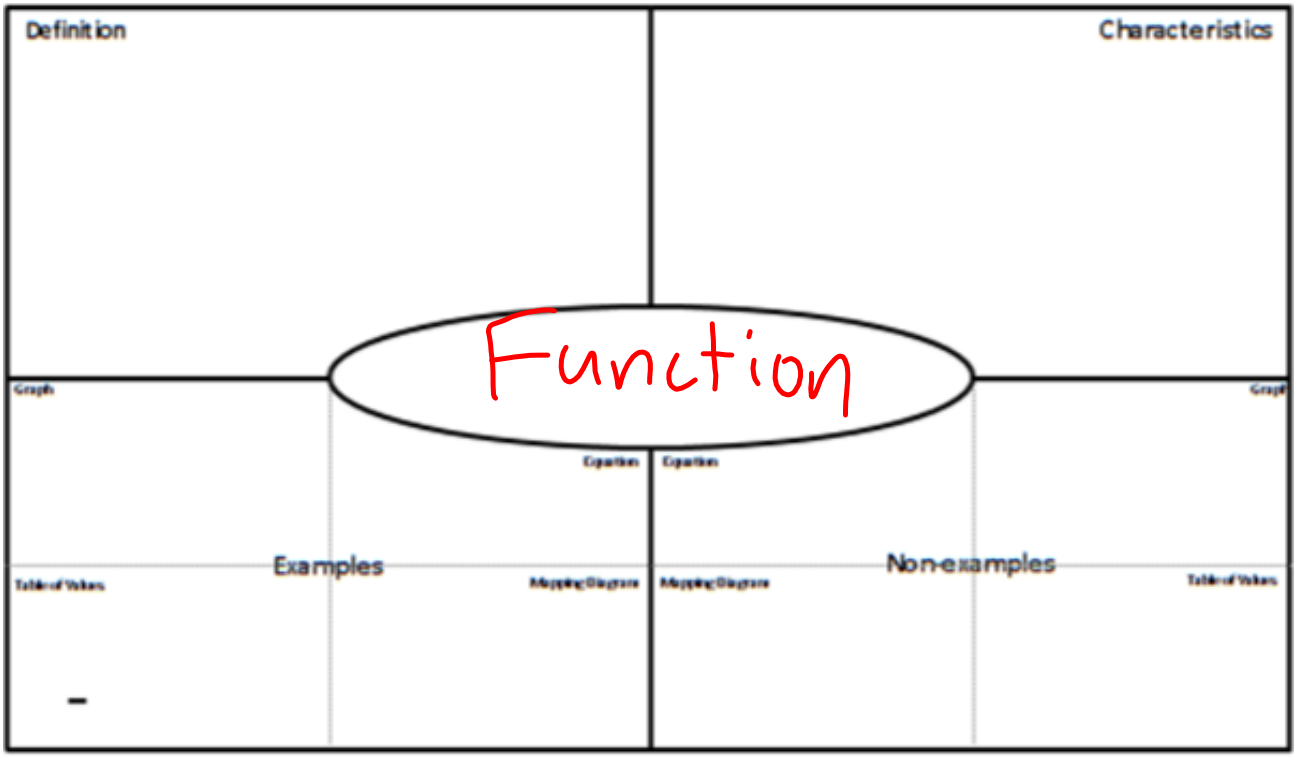
Minds on

Frayer Models



Action!

NEW TERM

Function Notation

"f of x" or "f at x"

Notation, such as f(x), used to represent the value of the dependent variable for a given value of the independent variable, x.

This means that y and f(x) are interchangeable in an equation of a function.

equation function

$$y = -3x + 5$$

$$f(y = -3x + 5) \quad y \text{ is a function of } x$$

Action!

Look it up!

function ('fʌŋkʃən)

— *n*

1. the natural action or intended purpose of a person or thing in a specific role: *the function of a hammer is to hit nails into wood*
2. an official or formal social gathering or ceremony
3. a factor dependent upon another or other factors: *the length of the flight is a function of the weather*

$$A = \frac{1}{2}bh$$

$$f(b, h) = \frac{1}{2}bh$$

"the area of a triangle is a function of the width of the base and the height of the triangle"

Action!

Function Notation

WHITEBOARDS

Write each equation in *function form*.

$y = 3x - 6$

$f(x) = 3x - 6$

$y = 2x^2 - 4x + 1$

$f(x) = 2x^2 - 4x + 1$

$y = \sqrt{x+3}$

not a function

$d = 4t - 5$

$f(t) = 4t - 5$

Action!

Function Notation

WHITEBOARDS

Write each equation in *function form*.

$$A = \pi r^2$$

$f(r) = \pi r^2$

The area of a circle is a function of the length of its radius.

$$S = 180(n - 2)$$

$f(n) = 180(n - 2)$

The sum of the interior angles in a polygon is a function of the number of sides, n, the polygon has.

Action!

Function Notation

We can use function notation to "evaluate" functions given the value of the independent variable(s).

Example 1: Given $f(x) = 2x + 5$, evaluate:

a) $f(5)$

$f(5) = 2(5)+5$

$f(5) = 10+5$

$f(5) = 15$

b) $f(-2)$

f(-2) = 2(-2) + 5

f(-2) = -4 + 5

f(-2) = 1

Action!

Function Notation

Example 2: Given $g(x) = 2x^2 - 4x$, evaluate $g(3) + g(-2)$.

$g(3) = 2(3)^2 - 4(3)$

$g(3) = 18 - 12$

$g(3) = 6$

$g(-2) = 2(-2)^2 - 4(-2)$

$g(-2) = 8 + 8$

$g(-2) = 16$

$g(3) + g(-2) = 6 + 16$

$g(3) + g(-2) = 22$

Here we evaluated g(3) and g(-2) separately and THEN added them.

Example 2: Given $g(x) = 2x^2 - 4x$, evaluate $g(3) + g(-2)$.

$$g(3) + g(-2) = [2(3)^2 - 4(3)] + [2(-2)^2 - 4(-2)]$$
$$= [18 - 12] + [8 + 8]$$
$$= 6 + 16$$
$$= 22$$

Here we evaluated g(3) and g(-2) and added them at the same time!

Action!

Function Notation

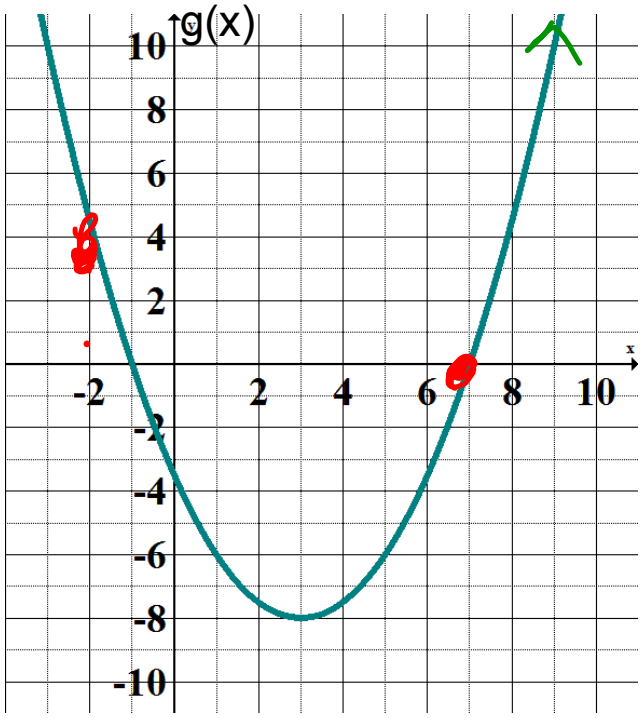
Example 3: Using the following graph, determine:

a) g(7) b) g(-2) c) x when $g(x) = -6$

0

4

1 and 5



Consolidation

Homework!

TONIGHT

Pg. 10: 1, 2, 4, 5, 7, 8b, 9b, 11, 12

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