FUNCTION NOTATION AND EVALUATING FUNCTIONS

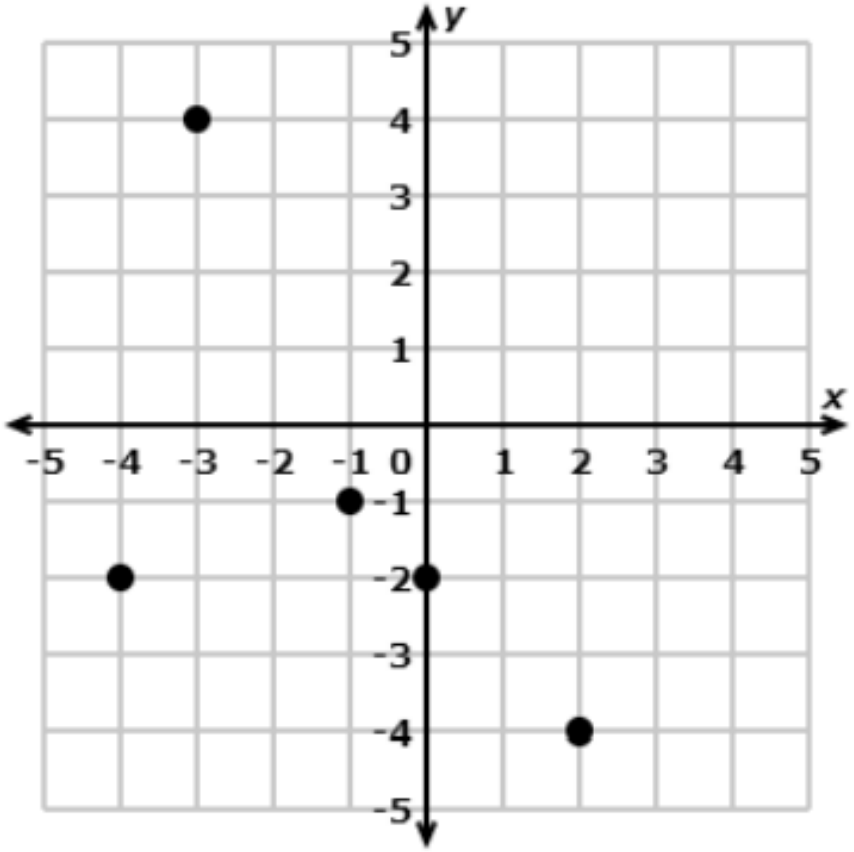
Standard: MGSE9-12.F.IF.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

Essential Question: What does it mean to evaluate a function?

JANUARY 23, 2018 WARM UP

Identify the domain and range.

Is the following relation a function?



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NUMBER TALKS

What is Number Talks?

Number Talks are a valuable classroom routine for:

- making sense of mathematics
- developing efficient computation
- communicating reasoning
- and providing solutions

SILENT SIGNALS

READY

- Closed fist on chest

I HAVE AN ANSWER

- Put thumb up

I HAVE ANOTHER STRATEGY

- Put out a finger for each additional strategy

SAME THINKING

- Move hand back and forth to show agreement

$$2(x+3)^2; x = 5$$

$$3(n+3) \div 7;$$
$$n = 4$$

$$5n - n^2; n = 2$$

KEY CONCEPTS

- Functions can be evaluated at values and variables.
- To evaluate a function, substitute the values for the domain for all occurrences of x.
- To evaluate $f(2)$ in $f(x) = x + 1$, replace all x's with 2 and simplify: $f(2) = (2) + 1 = 3$.

This means that $f(2) = 3$.

- $(x, (f(x))$ is an ordered pair of a function and a point on the graph of the function.

GUIDED PRACTICE EXAMPLE 1

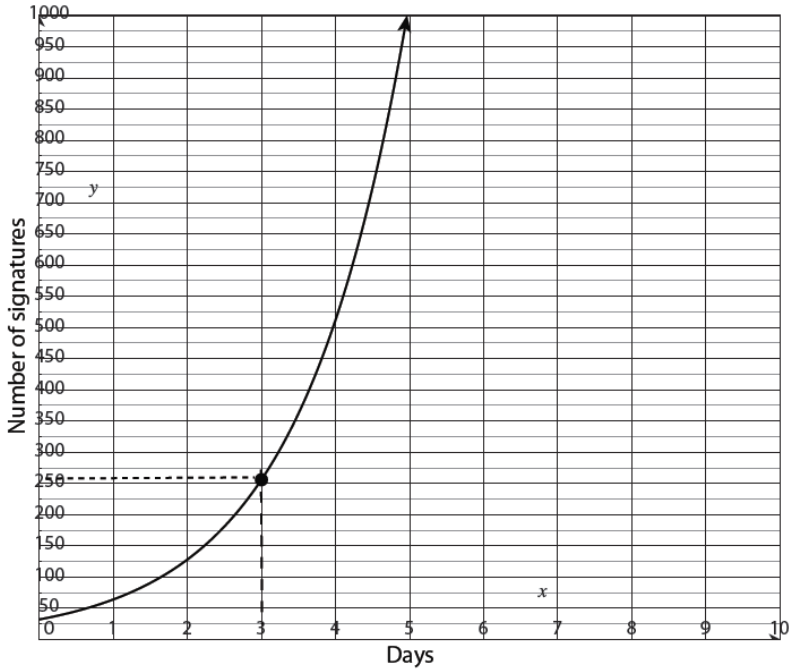
Evaluate $f(x) = 4x - 7$ over the domain $\{1, 2, 3, 4\}$. What is the range?

GUIDED PRACTICE EXAMPLE 2

Evaluate $g(x) = 3^x + 1$ over the domain $\{0, 1, 2, 3\}$. What is the range?

GUIDED PRACTICE EXAMPLE 3

Raven started an online petition calling for more vegan options in the school cafeteria. So far, the number of signatures has doubled every day. She started with 32 signatures on the first day. Raven's petition can be modeled by the function $f(x) = 32(2)^x$. Evaluate $f(3)$ and interpret the results in terms of the petition.



TICKET OUT THE DOOR

If the domain of $f(x) = x + 2$ is $\{0, 2, 4\}$, what is the range $f(x)$?

JANUARY 24, 2018 WARM UP

If $f(x) = 2x + 5$, Find x if $f(x) = 11$

BLAST FROM THE PAST #14

A family's cell phone plan costs $70 per month for 1,300 minutes and 40 cents per minute over the limit. This month, the family paid $118.40. By how much time did they exceed their plan?

a. 121 minutes

b. 471 minutes

c. 20 minutes

d. 76 minutes

INDEPENDENT WORK

Work to complete the Function Notation handout. If you are having trouble refer to your Cornell notes and/or ask a neighbor. NO CELL PHONES SHOULD BE OUT!!!!

JANUARY 25, 2018

WARM UP

1. If $w(x) = 4x + 5$, Find $w(-8)$

2. If $\mathrm{h}(n) = 3n^2 - 4$, Find $\mathrm{h}(0)$

3. If $f(x) = 4x - 2$, find x if $f(x) = 2$

4. If $\mathrm{g}(x) = 3x - 3$, find x if $\mathrm{g}(x) = 12$

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SAME THINKING

- Move hand back and forth to show agreement

$$(x + 5)^2; x = 1$$

$$4(n+1) \div 4;$$
$$n = 7$$

$$2n - 2n^2; n = 3$$

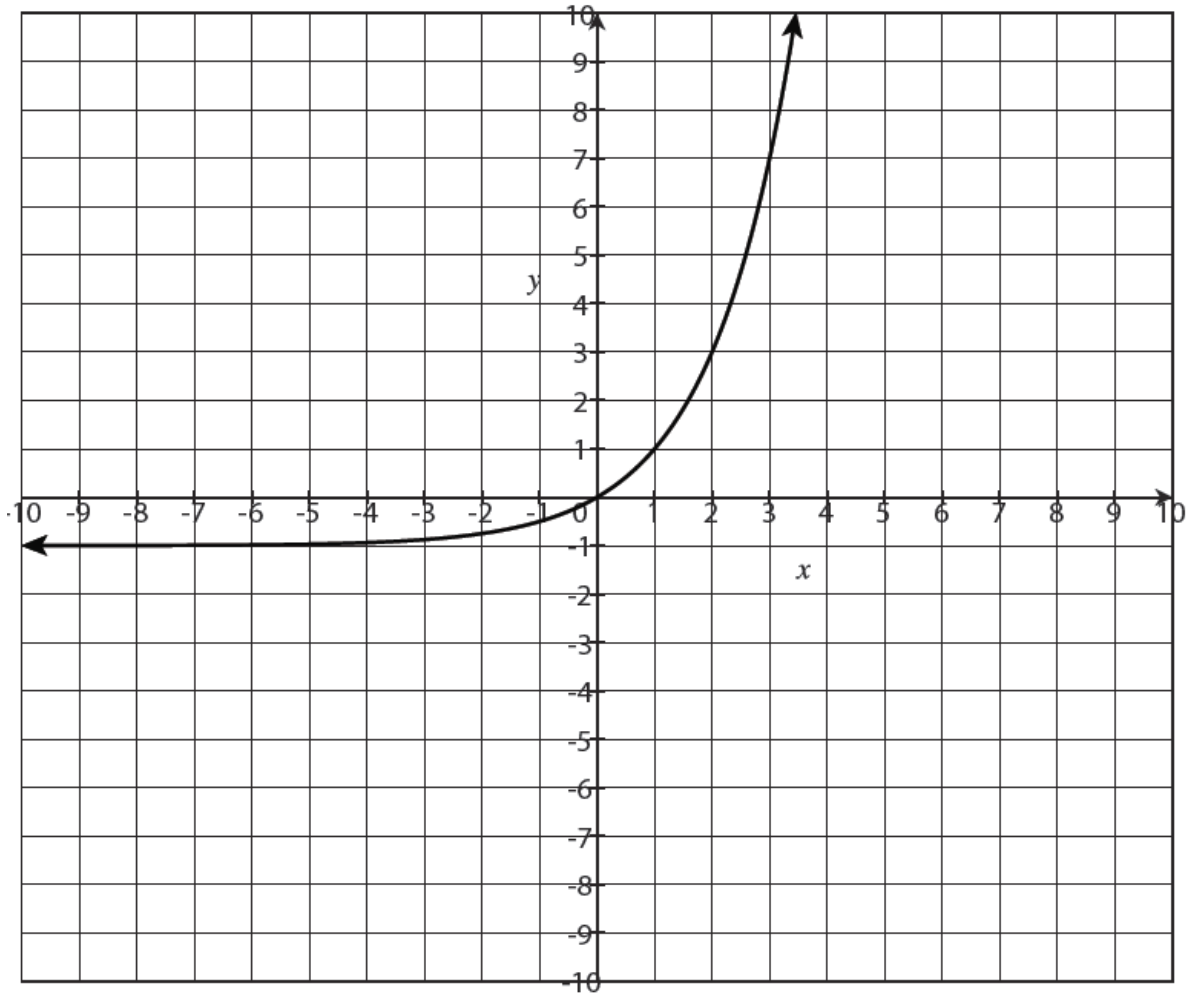
INDEPENDENT WORK

Work to complete the Evaluating Functions Assignment. If you are having trouble refer to your Cornell notes and/or ask a neighbor. NO CELL PHONES SHOULD BE OUT!!!!

JANUARY 26, 2018

WARM UP

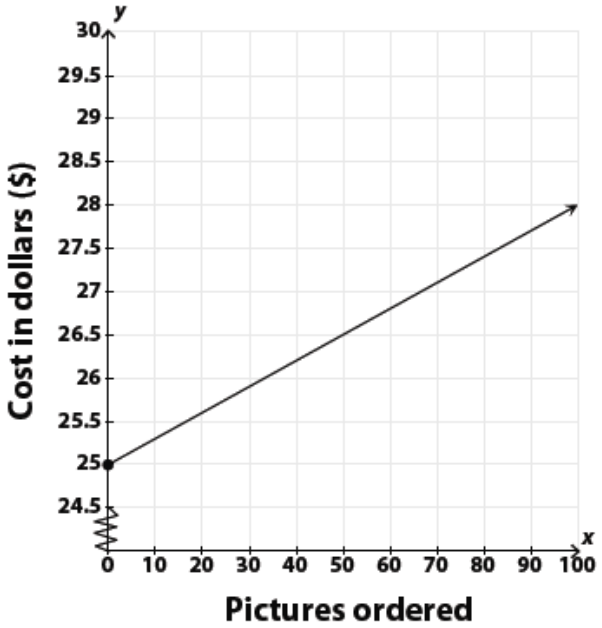
Given the graph, what is $f(3)$?



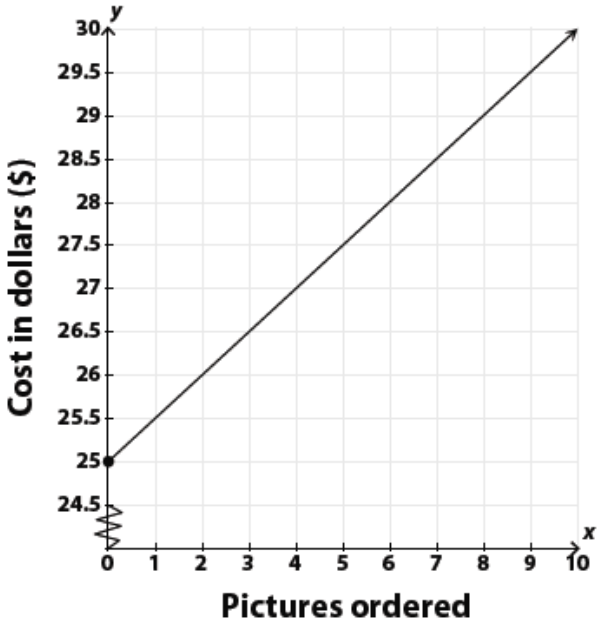
BLAST FROM THE PAST #15

A photo service charges $25.00 a year as well as $0.05 for each photo ordered. Which graph models the total cost of ordering photos?

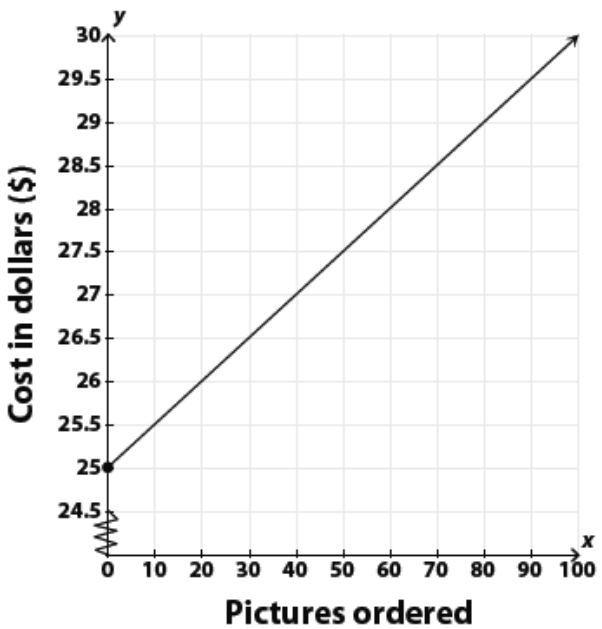
a.



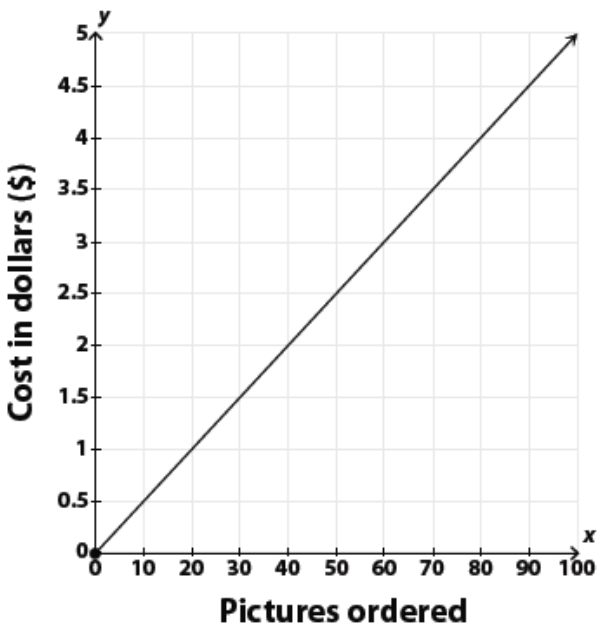
c.



b.



d.



QUIZ/NOTEBOOK CHECK

Have your notebooks available for review.

Take your time to complete the Function Notation quiz. NO TALKING AND NO CELL PHONES.

If you finish before time, simply raise your hand for your next set of instructions.