Function Notation

Evaluate $y = 5x+1$ when $x = 2$

$$y = 5(2) + 1$$
$$y = 10 + 1$$
$$y = 11$$

$$(x, y) \rightarrow (2, 11)$$

f of n

$$(2, 11) \leftarrow (n, f(n))$$

$f(n) = 5n + 1$ find $f(2)$

what is the value of the function at 2?

$$f(2) = 5(2) + 1$$
$$= 10 + 1$$
$$f(2) = 11$$

Given $f(n) = 8n - 3$ and $g(n) = 3n - 10$, evaluate the following.

1) $f(5) = 8n - 3$
$$= 8(5) - 3$$
$$= 40 - 3$$
$$f(5) = 37$$

2) $g(5) = 3n - 10$
$$= 3(5) - 10$$
$$= 15 - 10$$
$$g(5) = 5$$

5) $f(0) = 8n - 3$
$\quad = 8(0) - 3$
$\quad = 0 - 3$
$f(0) = -3$

6) $g(0) = 3n - 10$
$\quad = 3(0) - 10$
$\quad = 0 - 10$
$g(0) = -10$

Sequence — A list of numbers

Ex: 1, 5, 9, 13... ← 4th term
$\quad\quad$↑
$\quad\quad$1st term

Term — each number in a sequence.

Arithmetic Sequence — Add the same # to each term to get the next term.

Ex: 1, 5, 9, 13, ...
$\quad\quad$ +4 +4 +4
$\quad\quad\quad\quad$ ↑ common difference

Common Difference — The amount repeatedly added in a sequence

READY

Topic: Using function notation

To **evaluate** an equation such as $y = 5x + 1$ when given a specific value for x, replace the variable x with the given value and work the problem to find the value of y.

Example: Find y when x = 2. Replace x with 2. $y = 5(2) + 1 = 10 + 1 = 11$.
Therefore, y = 11 when x = 2. The point (2, 11) is one solution to the equation $y = 5x + 1$. Instead of using x and y in an equation, mathematicians often write $f(n) = 5n + 1$ because it can give more information. With this notation, the direction to find $f(2)$, means to replace the value of n with 2 and work the problem to find $f(n)$. The point $(n, f(n))$ is in the same location on the graph as (x, y), where n describes the location along the x–axis, and $f(n)$ is the height of the graph.

Given that $f(n) = 8n - 3$ and $g(n) = 3n - 10$, evaluate the following functions with the indicated values.

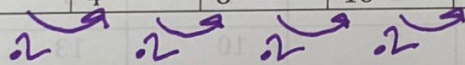1. $f(5) =$　　　　　　2. $g(5) =$　　　　　　3. $f(-4) =$　　　　　　4. $g(-4) =$

5. $f(0) =$　　　　　　6. $g(0) =$　　　　　　7. $f(1) =$　　　　　　8. $g(1) =$

Topic: Looking for patterns of change
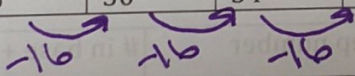**Complete each table by looking for the pattern.**

9.

Term	1st	2nd	3rd	4th	5th	6th	7th	8th
Value	2	4	8	16	32	64	128	256

·2　·2　·2　·2

10.

Term	1st	2nd	3rd	4th	5th	6th	7th	8th
Value	66	50	34	18	2	-14	-30	-46

-16　-16　-16

Arithmetic Common Difference -16

11.

Term	1st	2nd	3rd	4th	5th	6th	7th	8th
Value	160	80	40	20				

12.

Term	1st	2nd	3rd	4th	5th	6th	7th	8th
Value	-9	-2	5	12				

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