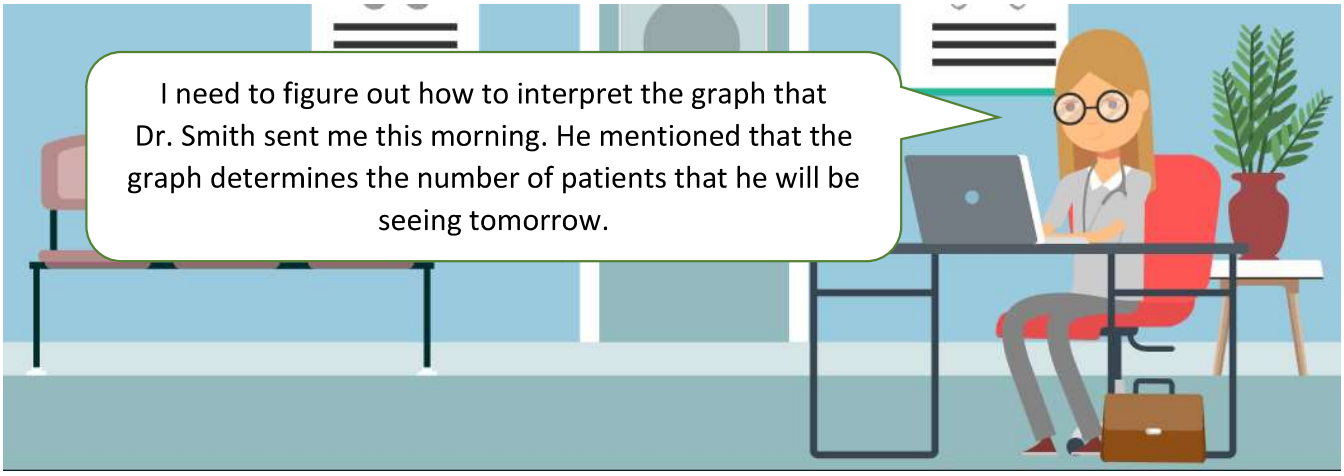
4.4 Operations of Functions

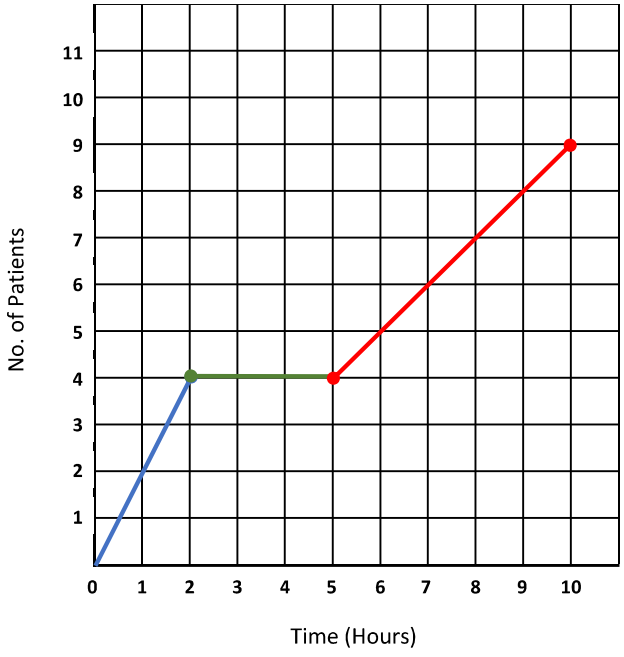
Warm-Up

Simplify the operations of polynomials.

$(3x - 2) - (8 - x)$ $(2x^2 - 9) + (6x^2 - 5x + 10)$

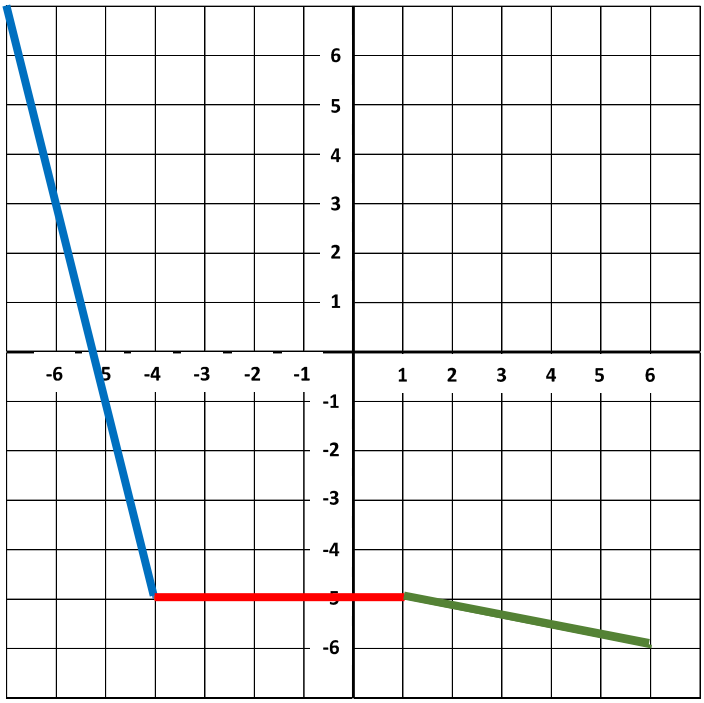
Main Topic Operations of Functions





- $f(2) = ?$
- $f(4) = ?$
- $f(8) = ?$
- $f(h) = 2, h = ?$
- $f(h) = 5, h = ?$
- $f(h) = 9, h = ?$
- What is the equation of the **blue** line?
- What is the equation of the **green** line?
- What is the equation of the **red** line?

Quick Math



f(-6)=?	f(n)=-1, n=?
f(1)=?	f(n)=-3, n=?
f(6)=?	f(n)=-5, n=?
What is the equation of the **blue** line?	
What is the equation of the **red** line?	
What is the equation of the **green** line?	

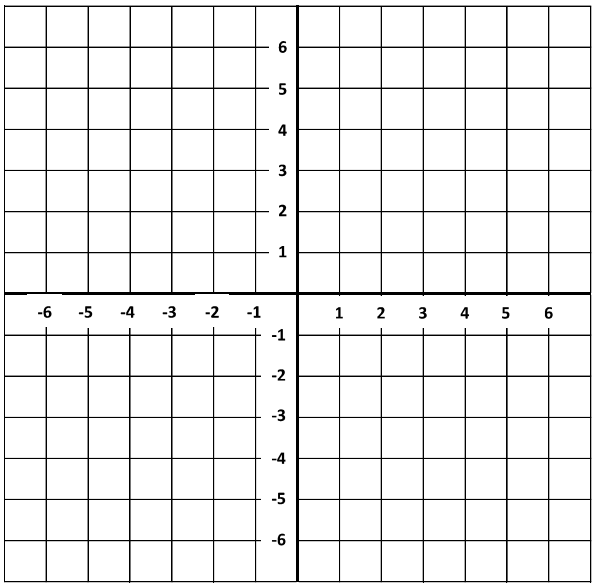
Adding and Subtracting Functions

Graph the functions.

$$f(x) = 2x - 4 \quad \text{and} \quad g(x) = -5x + 1$$

Solve the following operations.

- $f(x) + g(x)$
- $f(x) - g(x)$
- $3g(x) - 2f(x)$



Graph: $\boldsymbol{f(x) + g(x)}$

Combining Monomials

Add or subtract like terms only. Like terms have the same variables with The same exponents. Ex. $3x^2 + 5x - x^2 + 1 = 2x^2 + 5x + 1$

Perform the operations of the following functions.

$f(x) = 5x^2 - 3x + 1$ and $g(x) = 7x - 5$	
$f(x) + g(x)$	$f(x) + f(x)$
$g(x) + g(x)$	$g(x) - f(x)$

Pick Me

Pick the correct answer of the operations in the shapes below.

$f(x) = 8 - x^2$ and $g(x) = 6x^2 + 5x - 3$

Pick Me

$-7x^2 - 5x + 11$

Pick Me

$5x^2 + 5x + 11$

Pick Me

$5x^2 + 5x + 5$

Pick Me

$5x^2 + 5x - 11$

Pick Me

$16 - 2x^2$

Pick Me

$12x^2 + 10x - 6$

I pick

_____

as the sum of

$f(x)$ and $g(x)$

I pick

_____

as the difference of

$f(x)$ and $g(x)$

I pick

_____

as the sum of

$f(x)$ and $f(x)$

I pick

_____

as the sum of

$g(x)$ and $g(x)$

Quick Review

What does -4 mean in the notation $f(-4)$?

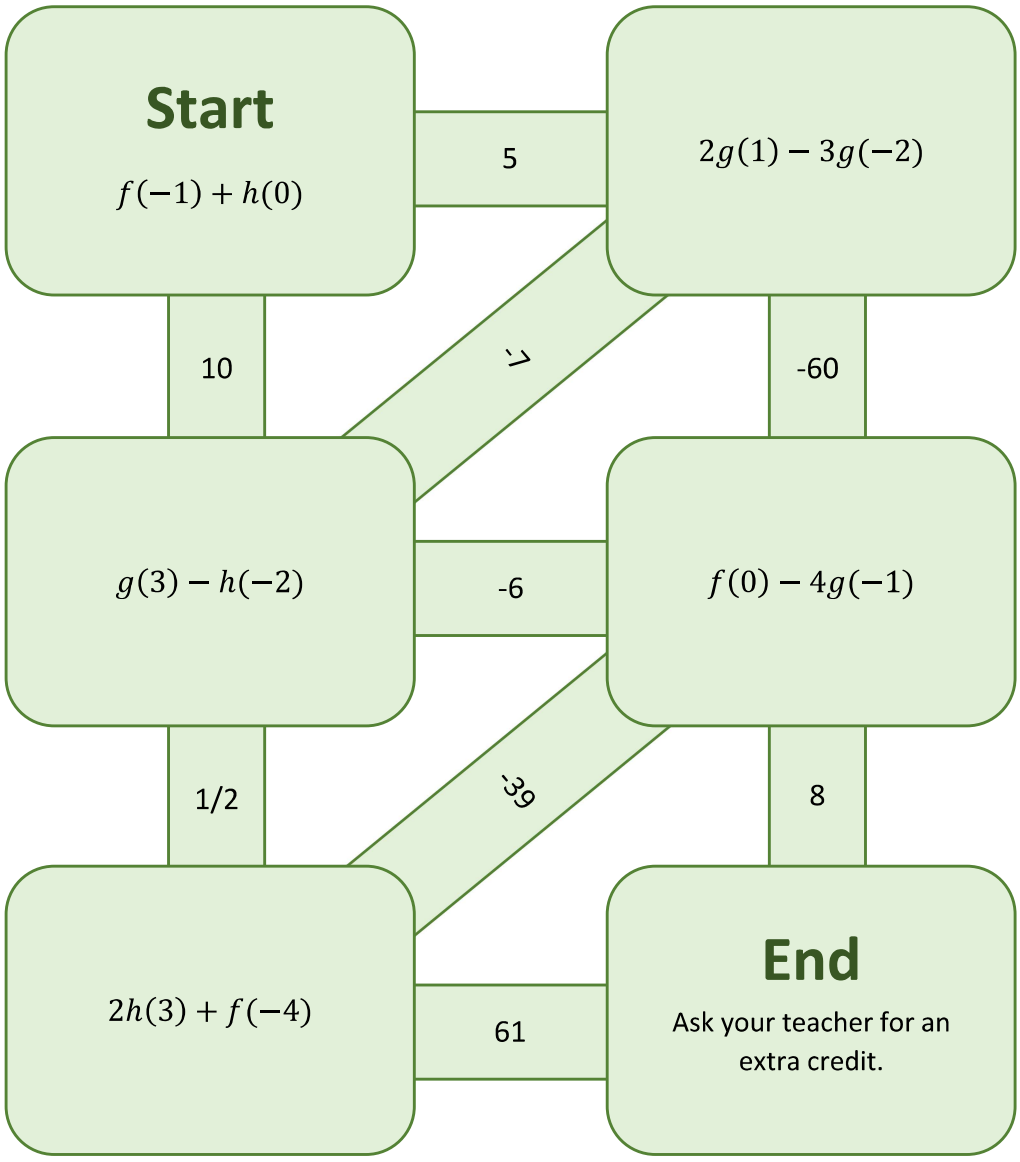
Evaluate the following functions.

$f(x) = 5x^2 - 3x + 1$ and $g(x) = 7x - 5$	
$f(-3)$	$g(-3)$
$f(1) + g(-2)$	$g(4) - f(0)$
$5f(-1) + 2g(6)$	$6f(2) - 3f(4)$
$-4f(0) + 10g(-1)$	$6f(-2) - 3f(1)$

Function Evaluation Maze

Evaluate the following functions.
Connect the shapes by drawing a line that passes through the answer from START shape.

Given: $f(x) = 3x^2 - 2x + 5$, $g(x) = 4 - 7x$, and $h(x) = -x^2 + 3x$



End-of-Course Prep