Inspiring Greatness

INDEPENDENCE SCHOOL DISTRICT

Math Virtual Learning

Algebra 2A

Evaluating and Composing Polynomial Function

April 27, 2020

Lesson:

Composing Polynomials

Learning Target:

LT D3 I can evaluate polynomial functions.

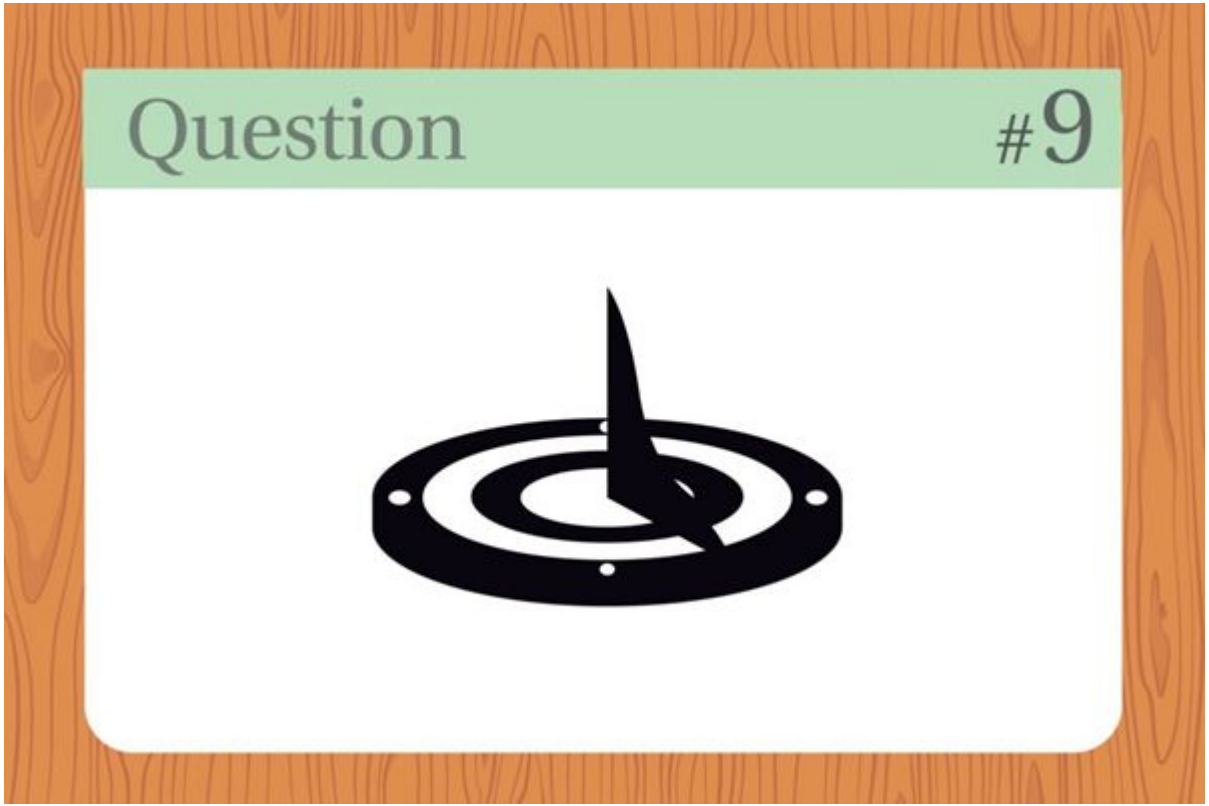
Objective:

Students will be able to evaluate polynomials. Students will be able to compose polynomial functions.

Warm Up

For today's warm up, please solve the riddle below.

A sundial has the fewest moving parts of any timepiece. Which has the most?



Warm Up

Answer: An hourglass—It has thousands of grains of sand.

Lesson

If you need to, please watch this review of what Function Notation is.

❖ Function Notation ❖

When you are ready, watch the following videos below.

Adding and Subtracting Functions - Function Notation

Multiplying and Dividing Functions - Function Notation

Practice

Given the following functions:

$f(x) = x + 3$ $g(x) = x^2 - 3$ $h(x) = 2x - 5$

Evaluate:

1. $f(x + 2)$
2. $g(x + 1)$
3. $h(x) + f(x)$
4. $h(x) + g(x) - f(x)$
5. $g(x) \cdot f(x)$
6. $h(x) \div f(x)$

Given the following functions:

$f(x) = x + 3$ $g(x) = x^2 - 3$ $h(x) = 2x - 5$

Evaluate:

1. $f(x + 2) = (x+2) + 3$

$= x + 5$

Given the following functions:

$f(x) = x + 3$ $\quad g(x) = x^2 - 3$ $\quad h(x) = 2x - 5$

2. $g(x + 1) = (x+1)^2 - 3$

$= (x+1)(x+1) - 3$

$= x^2 + 2x + 1 - 3$

$= x^2 + 2x - 2$

	x	$+1$
x	x^2	x
$+1$	x	1

$x^2 + x + x + 1$

$x^2 + 2x + 1$

Given the following functions:

$f(x) = x + 3$ $g(x) = x^2 - 3$ $h(x) = 2x - 5$

Evaluate:

3. $h(x) + f(x) = (2x-5) + (x+3)$

$= 2x - 5 + x + 3$

$= 3x - 2$

Given the following functions:

$f(x) = x + 3$ $g(x) = x^2 - 3$ $h(x) = 2x - 5$

Evaluate:

4. $h(x) + g(x) - f(x) = (2x-5) + (x^2-3) - (x+3)$

$= 2x - 5 + x^2 - 3 - x - 3$

$= x^2 + x - 11$

Given the following functions:

$f(x) = x + 3$ $\quad g(x) = x^2 - 3$ $\quad h(x) = 2x - 5$

Evaluate:

5. $g(x) \cdot f(x) = (x^2 - 3)(x + 3)$

	x^2	-3
x	x^3	$-3x$
3	$3x^2$	-9

$= x^3 + 3x^2 - 3x - 9$

Given the following functions:

$f(x) = x + 3$ $\quad g(x) = x^2 - 3$ $\quad h(x) = 2x - 5$

Evaluate:

6. $h(x) \div f(x) = (2x - 5) \div (x + 3)$

$$
\begin{array}{r}
2 \\
x+3 \overline{)\,2x - 5} \\
\ominus\ 2x + 6 \\
\hline
-11
\end{array}
$$

Answer: $2 + \dfrac{-11}{x+3}$

Answers to Practice Problems

1. $x + 5$
2. $x^2 + 2x - 2$
3. $3x - 2$
4. $x^2 + 3x - 5$
5. $x^3 + 3x^2 - 3x - 9$
6. $2 + \frac{-11}{x+3}$

Additional Resources

Adding and subtracting functions

Multiplying and dividing functions

Additional Practice- Complete only #1-15 on the following practice.

Function Operations