

What's Going On?

Checking In

Minds on

Variables, Coefficients and Terms
OH MY

Action!

You Figure it Out!

Consolidation

Group Challenge

**Learning Goal - I will be able to collect like terms
and simplify algebraic expressions.**

Checking In

Learning Goal Log

Each day, you will make an entry in your Learning Goal Log (LGL).

Each lesson gets its own page (please use the front and back of the sheets)

Include:

September 3, 2014

Learning Goal:

(LEAVE THE REST OF THE PAGE
BLANK... for now)

STARTS SOON!

Checking In

Binders

New Unit!

Unit 1: Polynomials

Minds on

Variables, Coefficients and Terms OH MY

First, we need to introduce some vocabulary!

In the term $-8x$ we have a variable and we have a coefficient.

The **variable** is ~~x~~

The **coefficient** is -8

Minds on

Variables, Coefficients and Terms OH MY

In the **term** $-3.5n^2$ we have a **variable** and we have a **coefficient**

The **variable** is n^2

The **coefficient** is -3.5

$$-3.5n^2$$

$$\text{When } n=2$$

$$= -3.5(2)^2$$

$$= -3.5 \times 4$$

$$= -14$$

Minds on

Variables, Coefficients and Terms OH MY

In the term g^4

The variable is g^4

The coefficient is 1

$$-x^3$$

variable x^3

coefficient -1

Term: -6

variable none //

coefficient -6

Minds on

Whiteboards!

On your whiteboard make this:

Variable	Coefficient

Minds on

Whiteboards!

$$-65b^3$$

Variable	Coefficient
b^3	-65

Minds on

Whiteboards!

$$5.3h^2$$

Variable	Coefficient
h^2	5.3

Minds on

Whiteboards!

$$-x^6$$

Variable	Coefficient
x^6	-

Minds on

Whiteboards!

$$-11 \times X \times Y^4$$

$$-11xy^4$$

Variable	Coefficient
xy^4	-11

Minds on

Whiteboards!

$$100m^2n^4$$

Variable	Coefficient
$m^2 n^4$	100

Action!

What's a Polynomial?

Polynomial - a *fully simplified* algebraic expression consisting of one or more terms (combination of coefficients and/or variables) connected by addition and subtraction.

Monomial - A polynomial with one term.

$$\boxed{6x} \quad \boxed{-2b} \quad \boxed{\frac{1}{2}k}$$

Binomial - A polynomial with two terms.

$$\boxed{2x-1} \quad \boxed{3ab+4bc}$$

Trinomial - A polynomial with three terms.

$$\boxed{-3x+4y-65}$$

monomials	binomials	trinomials
$a, 2x, -4k^2, 8, 0$	$2c - 4, a^2b^3 - 3,$ $mn + o$	$3g^3 - 2h^4 + 5$ $-7r^4 + 5s^3 - 6t^7$

Action!

You Figure it Out!

Describe the rules for simplifying algebraic expressions based on the examples below.

$$\begin{array}{c} \text{Expression} \\ \boxed{3x} + \boxed{4} - \boxed{2x} + \boxed{7} - \boxed{3y} = \boxed{x} - \boxed{3y} + \boxed{11} \\ \text{Polynomial} \end{array}$$

$$\boxed{x} + \boxed{2y} + 3z - \boxed{x} - y - z = y + 2z$$

$$5\boxed{x^2y} + 2xy - 2\boxed{x^2y} = 3\boxed{x^2y} + 2xy$$

$$5 + 2a - 9a - 7 = -2 - 7a$$

We can only add and subtract terms that have the same variable component!

"Like Terms"

Action!

You Figure it Out!

Copy the algebraic expression into your notes and simplify fully.

$$\begin{aligned} & \cancel{3x} + \cancel{2y} + \cancel{4x} - \cancel{8y} \\ & = 3x + 4x + 2y - 8y \\ & = 7x - 6y \end{aligned}$$

$$\begin{aligned} & \cancel{3x} + \cancel{2y} - \cancel{5x} - \cancel{7x} - \cancel{4z} + 6y + \cancel{10x} - 3z \\ & = 1x + 8y - 7z \end{aligned}$$

Action!

You Figure it Out!

Copy the algebraic expression into your notes and simplify fully.

$$-9 + 2a - 2b + 3a - 6 + 7 + 9b$$

$$\begin{aligned}
 &= \underbrace{-9 - 6 + 7}_{-12} + \underbrace{2a + 3a}_{5a} - \underbrace{2b + 9b}_{7b} \\
 &= -12 + 5a + 7b \\
 &= -12 + 5a + 7b
 \end{aligned}$$

$$5x + 4$$

Can't be simplified!

+5x and +4 are not
like terms

Action!

You Figure it Out!

Copy the algebraic expression into your notes and simplify fully.

$$\begin{aligned}
 & 3xy + 2xyz - 2x^2y + xy + 5xyz - 4x^2 \\
 &= 3xy + xy + 2xyz + 5xyz - 2x^2y - 4x^2 \\
 &= 4xy + 7xyz - 2x^2y - 4x^2
 \end{aligned}$$

$$\begin{aligned}
 & 9x^2y + 2 + 6xy - 3x^2y + 16y + 18xy - 10 \\
 &= 9x^2y - 3x^2y + 2 - 10 + 6xy + 18xy + 16y \\
 &= 6x^2y - 8 + 24xy + 16y
 \end{aligned}$$

Consolidation

Group Challenge

1. Create an algebraic expression that can be simplified (has like terms).
2. Simplify your expression on a separate piece of paper.
3. Trade expressions with a partner; you will simplify each others.
4. Compare your simplified expressions and make sure you agree!

Consolidation

Homework

gilbertmath.com