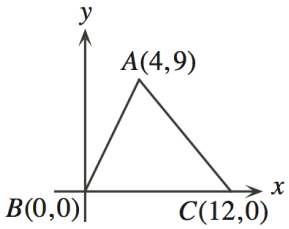
Section 3.4 – Communicate with Algebra

MPM1D

Brain Teaser:

In the diagram, what is the area of the triangle?



Part 1: Do It Now

A hockey team gets 2 points for a win, 1 point for a tie, and 0 points for a loss.

a) Write an equation for determining the amount of points a team has.

b) If the Penguins win 54 games, tie 8, and lose 20; how many points will they get?

Part 2: Terms

Term: an expression formed by the **product** of _____ and or _____.

Example of a term:

$$4x^2$$

The number in front of the variable is called the_____.

Identify the coefficient and the variable for the expression $4x^2$:

Coefficient: _____

Variable: _____

Practice with Terms

Identify the coefficient and the variable of each term:

a) Jim earns \$7 per hour at his part-time job. If he works for x hours, his earnings, in dollars, are $7x$.
b) The depth, in meters, of a falling stone in a well after t seconds is $-4.9t^2$
c) The area of a triangle with base b and height h is $\frac{1}{2}bh$
d) The area of a square with side length k is k^2

Expression	Coefficient	Variable	Comments
			The negative sign is included with the coefficient
			The variable can consist of more than one letter or symbol
			When the coefficient is not shown, it is 1.

Part 3: Polynomials

Polynomial: an algebraic expression consisting of one or more terms connected by _____ or _____ operators.

Example of a polynomial:

$$3x^2 + 2x$$

A polynomial can be classified by the number of terms it has:

A _____ is a polynomial with only **one term**.

A _____ is a polynomial with **two terms**.

A _____ is a polynomial with **three terms**.

A _____ is a polynomial with **four terms**.

Classify each polynomial by the number of terms it has:

Polynomial	Number of Terms	Type of Polynomial
$3x^2 + 2x$		
$-2m$		
$4x^2 - 3xy + y^2$		
$a - 2b + c - 3$		

Hint: *You can find the number of terms by looking for the addition and subtraction operators that separate the terms.*

Part 4: Degree of a Term

Degree of a term: the sum of the _____ on the variables in a term.

Example of determining the degree of a term:

Term: $5x^2y^3$

Sum of exponents on variables:

Degree of term:

Find the degree of each term by adding the exponents of the variables:

Term	Sum of Exponents	Degree of Term
x^2		
$3y^4$		
$0.7uv$		
$-2a^2b$		
-5		

Note:

- a variable that appears to have no exponent actually has an exponent of _____
- a constant has a degree of _____

Part 5: Degree of a Polynomial

The ***degree of a polynomial*** is equal to the degree of the _____ in the polynomial.

Example:

Polynomial: $3x^2y^4 + 11x^2y^2 + y^5$

Highest degree term:

Degree of highest-degree term:

Degree of polynomial:

Find the degree of each polynomial:

Polynomial	Term with Highest Degree	Degree of Term with Highest Degree	Degree of Polynomial
$x + 3$			
$5x^2 - 2x$			
$3y^3 + 0.2y - 1$			
$7x^2y^4 + x^6y$			

Part 6: Apply Our Knowledge

Mr. Jensen works part time as a golf instructor. He earns $125 for the season, plus $20 for each children`s lesson and $30 for each adult lesson that he gives.

a) Write an expression that describes Mr. Jensen's total earnings for the season. Identify the variables and what they stand for.

b) If Mr. Jensen gave **8 children's** lessons and **6 adult lessons**, what were his total earnings?

Review of Terms

_____ : an expression formed by the product of numbers and/or variables

_____ : an algebraic expression consisting of one or more terms connected by addition or subtraction signs.

_____ : the sum of the exponents on the variables in a term

_____: equal to the degree of the highest-degree term in a polynomial