

DECEMBER 4, 2015

UNIT 4: POLYNOMIALS

**SECTION 5.1:
MODELLING
POLYNOMIALS**

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MATH 9



WHAT'S THE POINT OF TODAY'S LESSON?

We will begin working on the Math 9 Specific Curriculum Outcome (SCO) "Patterns and Relations 5" OR PR5 which states:

PR5: "Demonstrate an understanding of polynomials (limited to polynomials of degree less than or equal to 2)."



What does **THAT** mean???

Polynomials, or "pre-algebra", prepare us for solving equations ("algebra").

SCO PR5 means that we will learn about the different parts of polynomials which are a combination of numbers, variables (letters) and mathematical operations (+ / - / x). We will use "algebra tiles" (little plastic rectangles and squares) to help us understand polynomials.



5.1: "MODELLING POLYNOMIALS"

- 1. Please turn to pages 208/209 in the textbook.**
- 2. "What You'll Learn"**
- 3. "Why It's Important"**
- 4. Key Words**

VOCABULARY:

1. **VARIABLE:** A letter or a symbol that we use to represent an unknown value.

ex: Let "x" represent the height of a student.

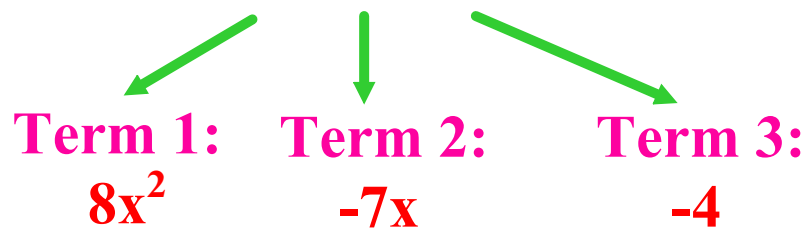
2. **EXPRESSION:** A mathematical phrase made up of numbers and/or variables connected by mathematical operations.

ex: $3x + 2$

3. **TERMS:** Numbers, variables, or the product of numbers and variables. **Terms** are separated by "+" and "-" signs. The sign directly in front of a **term** goes with that **term**.

ex: In $3x + 2$, there are two terms: $3x$ is the first **term**, and 2 is the second **term**.

ex: $8x^2 - 7x - 4$



4. NUMERICAL COEFFICIENT: A number that is multiplied by a variable.

ex: $4a^2 + a$

4 is the numerical coefficient of **a^2** .

$a = 1a$, so **1** is the numerical coefficient of **a** .

5. CONSTANT TERM: A term that does **NOT** contain a variable.

ex: $3r - 8$

-8 is the **constant** in this expression.



6. **POLYNOMIAL**: A mathematical expression with one or more terms in which the *exponents are whole numbers*, and the *numerical coefficients are real numbers*. They are constructed from variables, numerical coefficients, and sometimes (not always) constants, using **only** the mathematical operations of **addition, subtraction, and multiplication (NOT division)**. We have seen several examples of **polynomials** in the previous 5 definitions:

1: x

2: $3x + 2$

3: $8x^2 - 7x - 4$

4: $4a^2 + a$

5: $3r - 8$

A **polynomial** is usually written in **descending order** - the exponents of the variables decrease from left to right.

ex: $2k - 4k^2 + 7 \longrightarrow -4k^2 + 2k + 7$

Polynomials with 1, 2, or 3 terms have special names.

* A monomial has 1 term. ex: $4a$; 6 ; $-2p^2$

* A binomial has 2 terms. ex: $2c - 5$
 $3m^2 + 3m$

* A trinomial has 3 terms. ex: $10h^2 - 6h - 4$

CONCEPT REINFORCEMENT:

MMS 9

*** Study for Monday's vocabulary quiz**