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UNIT 4: POLYNOMIALS

SECTION 5.2:
LIKE TERMS AND
UNLIKE TERMS

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MATH 9

WHAT'S THE POINT OF TODAY'S LESSON?

We will continue 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.

HOMEWORK QUESTIONS?

(Pages 214 / 215 / 216, #8, 11, 12, 13, 15, 16 & 18)

When you work with integers,
a 1-tile and a −1-tile form a zero pair. → 0

What do you think happens when you combine algebra tiles with opposite signs?
Which expression do these tiles represent?

$x^2 - 2x + 4$

(follow along on pg. 218)

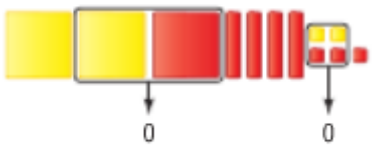
Here is a collection of red and yellow algebra tiles:

We organize the tiles by grouping like tiles:

$x^2 - 4x - 1$

These tiles represent the polynomial: $2x^2 - x^2 - 4x + 2 - 3$

We simplify the tile model by removing zero pairs.



The remaining tiles represent the polynomial: $x^2 - 4x - 1$

Terms that can be represented by algebra tiles with the same size and shape are called LIKE TERMS.

$-x^2$ and $3x^2$ are like terms.
Each term is modelled with x^2-tiles.
Each term has the same variable, x, raised to the same exponent, 2.

We simplify a polynomial symbolically (with letters and numbers) by adding the numerical coefficients of like terms. This is called *combining like terms*. They have the same variable raised to the same exponent.

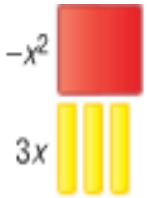
-1 + 3
= 2

ex: $-x^2 + 3x^2$

$= -1x^2 + 3x^2$ (add the num. coeffs. of -1 and 3)

$= 2x^2$

$-x^2$ and $3x$ are *unlike terms*.
Each term is modelled with a different algebra tile.
Each term has the variable x,
but the exponents are different.



$-x^2 + 3x$ CANNOT be simplified. We cannot add numerical coefficients when we have unlike terms. ($-x^2 + 3x$ have different exponents.)

EXAMPLE 1 - PAGE 219:

Simplify: $4n^2 - 1 - 3n - 3 + 5n - 2n^2$

$= 4n^2 - 2n^2 - 3n + 5n - 1 - 3$

$= 2n^2 + 2n - 4$

EXAMPLE 2 - PAGE 220:

Simplify: $14x^2 - 11 + 30x + 3 + 15x - 25x^2$

$= 14x^2 - 25x^2 + 30x + 15x - 11 + 3$

$= -11x^2 + 45x - 8$

CONCEPT REINFORCEMENT:

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Page 222: #6 TO #8
Page 223: #12 and #13