DECEMBER 3, 2018

UNIT 4: POLYNOMIALS

SECTION 5.3: ADDING 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 6" OR PR6 which states:

PR6: "Model, record and explain the operations of addition and subtraction of polynomial expressions concretely, pictorially and symbolically (limited to polynomials of degree less than or equal to 2)."

What does THAT mean???

SCO PR6 means that we will learn how to add and subtract polynomials [numbers both with and without variables (letters)] first with pictures (algebra tiles) then without.

Warm Up

Simplify

a) $2x^2 - 5x + 7 - 9 - 4x + 3x^2$

$2x^2 + 3x^2 - 5x - 4x + 7 - 9$

$5x^2 - 9x - 2$

b) $3ab + 3a - 9b + 7ab - 6b - ab + 2a^2$

$3ab + 7ab - 1ab + 3a - 9b - 6b + 2a^2$

$2a^2 + 9ab + 3a - 15b$

HOMEWORK QUESTIONS?
(Pages 222-224, 6-10, 12-14, 19 and 22)

SIMPLIFYING POLYNOMIALS:

Terms containing the same variable(s) with the same exponent(s) can be grouped together by adding their numerical coefficients.

ex.: $x^2 + x^2 + x + x + x + 1 + 1 + 1 + 1 + 1$

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

ADDING polynomials is very similar to grouping like terms:

Ex.: $(x^2 + 3x + 4) + (2x^2 + 5x + 1)$

$= x^2 + 3x + 4 + 2x^2 + 5x + 1$

$= x^2 + 2x^2 + 3x + 5x + 4 + 1$

$= 3x^2 + 8x + 5$

Ex.: $(4x^2 - 2x + 10) + (-5x^2 + 5x - 6)$

$= 4x^2 - 2x + 10 - 5x^2 + 5x - 6$

$= 4x^2 - 5x^2 - 2x + 5x + 10 - 6$

$= -x^2 + 3x + 4$

$=$

To ADD polynomials, simply remove the brackets separating them and group any like terms (by adding their numerical coefficients) as well as any constants. If necessary, simplify the signs in "the middle".

Remember:

$+ + = +$

$- - = +$

$+ - = -$

$- + = -$

You can also add polynomials vertically; however, this is not a commonly used method.

(Ex. 1, page 227)

Method 1

Add horizontally.

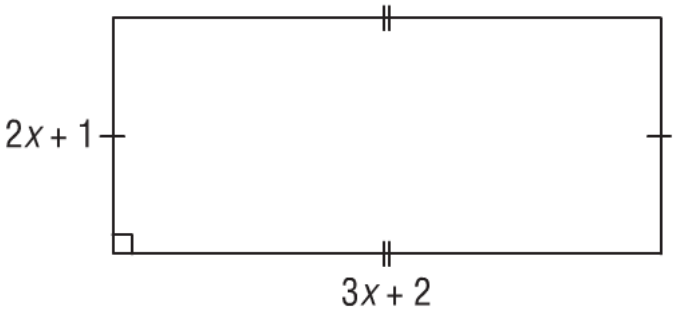
$(7s + 14) + (-6s^2 + 1s - 6)$	Remove the brackets.
$= 7s + 14 - 6s^2 + 1s - 6$	Group like terms.
$= -6s^2 + 7s + 1s + 14 - 6$	Combine like terms by adding their coefficients.
$= -6s^2 + 8s + 8$	

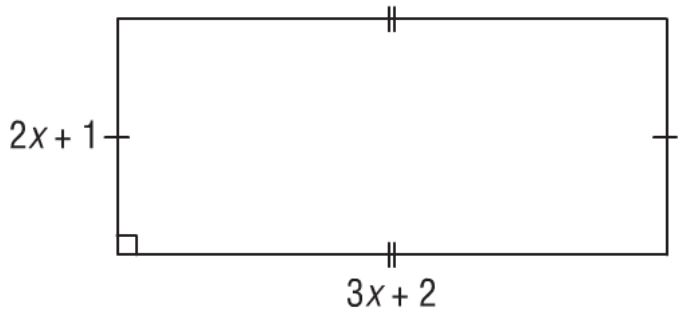
Method 2

Add vertically. Align like terms, then add their coefficients.

$$\begin{array}{rr} & 7s + 14 \\ + & -6s^2 + 1s - 6 \\ \hline & -6s^2 + 8s + 8 \end{array}$$

Write a polynomial for the perimeter of this rectangle. Show what you're actually adding together, then simplify.





$$(2x + 1) + (3x + 2) + (2x + 1) + (3x + 2)$$
$$= 2x + 1 + 3x + 2 + 2x + 1 + 3x + 2$$
$$= 10x + 6$$

$$P = 2(2x+1) + 2(3x+2)$$
$$= 4x + 2 + 6x + 4$$
$$= 10x + 6$$

Please review "EXAMPLE 3" on page 228 - "Adding Polynomials in Two Variables"

Add: $(2a^2 + a - 3b - 7ab + 3b^2) + (-4b^2 + 3ab + 6b - 5a + 5a^2)$

A Solution

$= 2a^2 + a - 3b - 7ab + 3b^2 - 4b^2 + 3ab + 6b - 5a + 5a^2$

$= 7a^2 - 4a - 4ab + 3b - b^2$

$=$

CONCEPT REINFORCEMENT:

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Page 228: #3

Page 229 : #8, 9, 10a

Page 230 : #12, 14, 16, 17, 18a