

**DECEMBER 16, 2015**

**UNIT 4: POLYNOMIALS**

**SECTION 5.4:  
SUBTRACTING  
POLYNOMIALS**

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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 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.**



**HOMEWORK QUESTIONS???**  
**(pages 228/229/230, #3, #6 - #10a, #12, #14,**  
**#16 - #18a);**  
**("Extra Praticce 1, 2 and 3")**

What's the rule for **subtracting integers**?

To subtract an integer, **ADD** its **OPPOSITE**.

ex:

$$\begin{aligned} & (+5) - (-2) \\ = & (+5) + (+2) \\ = & 5 + 2 \\ = & 7 \end{aligned}$$

To **SUBTRACT** polynomials, **add** the **opposite** of the **second** polynomial (the opposite of **EVERY** term in the **second** polynomial). At this point, you simply remove the brackets separating the two polynomials and group any like terms (by adding their numerical coefficients) as well as any constants. Also, simplify the signs in "the middle".

**Remember:**

+	+	=	+
-	-	=	+
+	-	=	-
-	+	=	-

**SUBTRACTING POLYNOMIALS:**

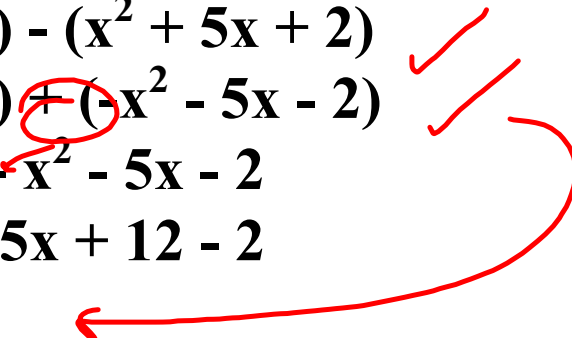
**Ex.:**       $(3x^2 + x + 12) - (x^2 + 5x + 2)$

$= (3x^2 + x + 12) + (-x^2 - 5x - 2)$

$= 3x^2 + x + 12 - x^2 - 5x - 2$

$= 3x^2 - x^2 + x - 5x + 12 - 2$

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



**You can always verify your answers when subtracting polynomials:**

**Add the answer to the 2nd polynomial in the question; their sum should equal the 1st polynomial in the question:**

$$\begin{aligned} & (2x^2 - 4x + 10) + (x^2 + 5x + 2) \\ = & 3x^2 + x + 12 \end{aligned}$$

$$8 - 2 = 6$$

$$6 + 2 = 8$$



$$\begin{aligned}\text{Ex.:} & \quad (-5y^2 + 2y) - (-3y^2 + 7y - 2) \\ & = (-5y^2 + 2y) + (3y^2 - 7y + 2) \\ & = -5y^2 + 2y + 3y^2 - 7y + 2 \\ & = -5y^2 + 3y^2 + 2y - 7y + 2 \\ & = -2y^2 - 5y + 2\end{aligned}$$

### One more example...

Simplify:

$$\begin{aligned} & (x^2 + xy + 3y - 2) - (2xy - 4y) \quad \checkmark \\ = & (x^2 + xy + 3y - 2) + (-2xy + 4y) \quad \checkmark \\ = & x^2 + xy + 3y - 2 - 2xy + 4y \\ = & x^2 - xy + 7y - 2 \quad \checkmark \end{aligned}$$

## **CONCEPT REINFORCEMENT:**

**(no need to draw algebra tiles; just do the work)**

### **MMS9**

**Page 234 : #5 and #6**

**Page 235 : #7 TO #10b**