

Math 9  
Ch. 5 - Polynomials

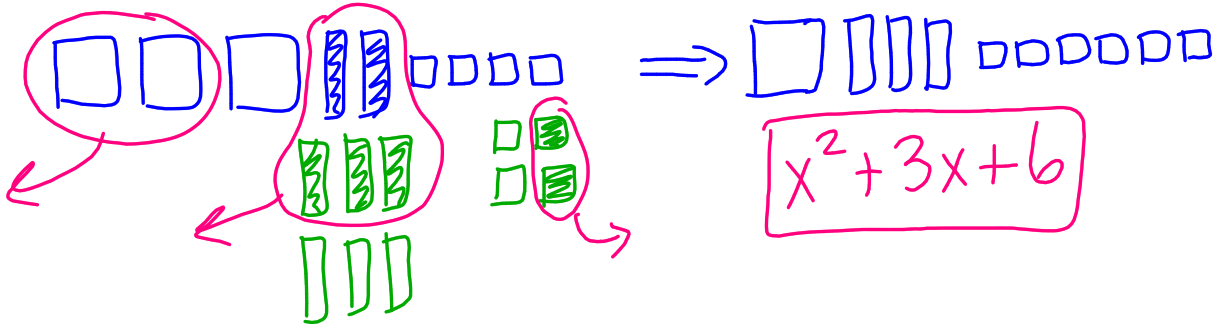
Name: \_\_\_\_\_  
Block: \_\_\_\_\_

**5.4 - Subtracting Polynomials**

Just like for adding polynomials, we can use algebra tiles to help us subtract polynomials.

Sometimes, we need to add zero pairs so that we are able to take away the correct number of tiles.

Ex. 1:  $(3x^2 - 2x + 4) - (2x^2 - 5x - 2)$   
 "take away"



To subtract polynomials algebraically, we must distribute the subtraction to all of the terms in the second polynomial. This essentially changes the sign on each term in the second polynomial. Then, combine like terms as usual to simplify.

Ex. 2: Subtract the following polynomials algebraically.

(a)  $(3x^2 - 4x) - (2x^2 - 6x)$

$-4 + (+6)$

Method 1 - Horizontally	Method 2 - Vertically
$(3x^2 - 4x) - (2x^2 - 6x)$ $= 3x^2 - 4x - 2x^2 + 6x$ $= \underline{x^2 + 2x}$	$\begin{array}{r} 3x^2 - 4x \\ - (2x^2 - 6x) \\ \hline x^2 + 2x \end{array}$

$$-2 + (-1)$$

$$(b) (-2a^2 + a - 1) - (a^2 - 3a + 2)$$

$$= \underline{-2a^2} + \underline{a} - \underline{1} - \underline{a^2} + \underline{3a} - \underline{2}$$

$$= \boxed{-3a^2 + 4a - 3}$$

$$(c) (5x^2 - 3xy + 2y^2) - (8x^2 - 7xy - 4y^2)$$

$$= \underline{5x^2} - \underline{3xy} + \underline{2y^2} - \underline{8x^2} + \underline{7xy} + \underline{4y^2}$$

$$= \boxed{-3x^2 + 4xy + 6y^2}$$

$$1+4$$

$$(d) (3p - 2) + (4p^2 - 2p + 1) - (p^2 + 4p - 2)$$

$$= \underline{3p} - \underline{2} + \underline{4p^2} - \underline{2p} + \underline{1} - \underline{p^2} - \underline{4p} + \underline{2}$$

$$= \boxed{3p^2 - 3p + 1}$$