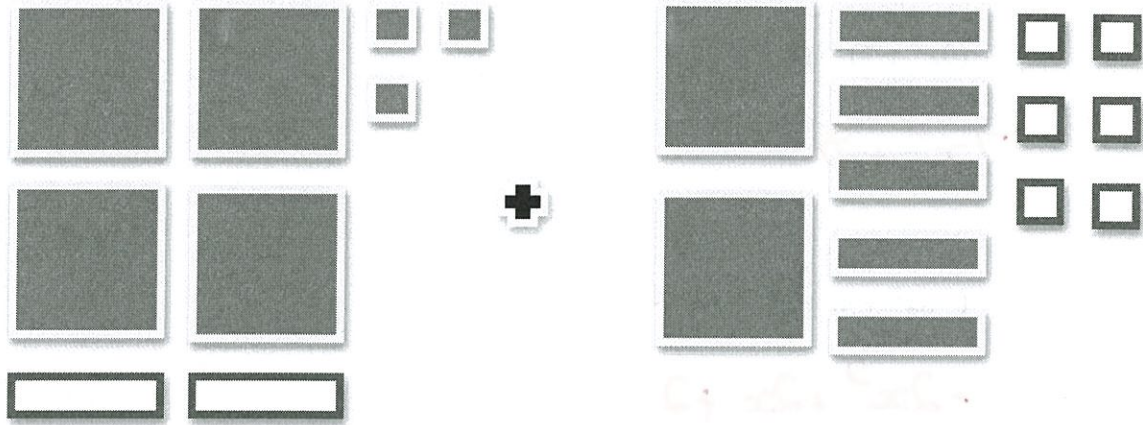# Math 9: Chapter 5 – Hand-in Assignment #2

1. For the problems below, write a complete **_algebraic equation_** and then draw the **_algebra tile solution_** for this problem. Use "X" as the variable and all shaded tiles are positive.

Algebra Tile Solution	Complete Equation
	$4x^2 + {}^-2x + 3$
	$+ 2x^2 + 5x + {}^-6$
	$= 6x^2 + 3x + {}^-3$

2. Simplify by adding or subtracting the following polynomials

    a. $(5x + 6) + (4x - 3)$

$$9x + 3$$

    b. $(9x^2 + 7) - (2x^2 - 1)$

$$7x^2 + 8$$

    c. $(-3x^2 + 4x - 3) + (x^2 - 2x + 5)$

$$-2x^2 + 2x + 2$$

    d. $(6x^2 + 5x + 6) - (4x^2 + 2x + 3)$

$$2x^2 + 3x + 3$$

    e. $(2x^2 - 4x + 1) + (3x^2 + 5x - 7)$

$$5x^2 + x + {}^-6$$

    f. $(-x^2 + 5x - 3) + (x^2 - 2x + 7)$

$$3x + 4$$

    g. $(3x^2 + 8x + 2) - (-3x^2 + 4x + 3)$

$$6x^2 + 4x + {}^-1$$

h. $(8x^2 + 4x + 2) - (2x^2 + 4x + 8)$

$6x^2 - 6$

i. $(-4x^2 + 3x + 3) - (-2x^2 - 3x - 6)$

$-2x^2 + 6x + 9$

j. $(4x - 5) + (3x + 4) + (8x - 2)$

$15x - 3$

k. $(2x^2 - x + 2) + (3x^2 + 4x - 5) + (-x^2 - 2x + 7)$

$4x^2 + x + 4$
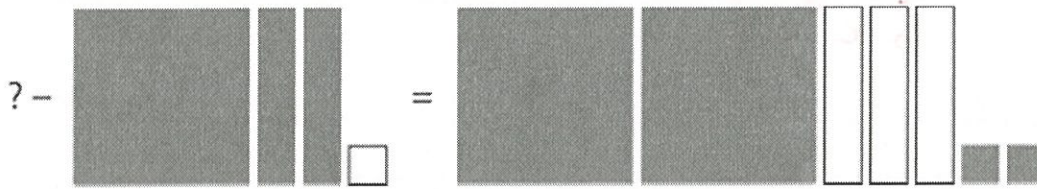
l. $(-3x^2 + 2x - 6) + (x^2 + 2x - 3) - (2x^2 - 3x - 10)$

$-4x^2 + 7x + 1$

m. $(7x^2 + 4x - 5) - (4x^2 + 2x - 1) + (6x^2 + 8x + 3)$

$9x^2 + 10x - 1$

3. Replace the question mark with an algebra tile model to make a true statement.

$? - \quad x^2 + 2x + {}^-1 = 2x^2 + {}^-3x + 2 \quad \therefore \quad 2x^2 + {}^-3x + 2$
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad + x^2 + 2x + {}^-1$
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\overline{\qquad\qquad\qquad\qquad}$
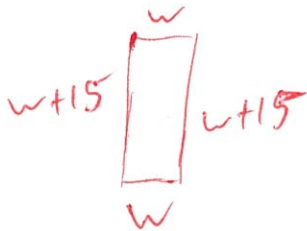$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad 3x^2 + {}^-x + 1$

4. A rectangle's length is 15 cm greater than its width, *w*.
   a. Draw the rectangle and label its dimensions.

$P = w + w + w + 15 + w + 15$
$\quad = 4w + 30$

   b. Write and simplify an expression for its perimeter.

5. A farm hand can move *n* bales of hay per hour when he is fresh. When he gets tired, however, he moves 5 fewer bales of hay per hour. One day, he works 3 h at top speed, then another 4 h at the slower speed.
   a. Write an expression to show how many bales of hay he moved. Simplify your answer.
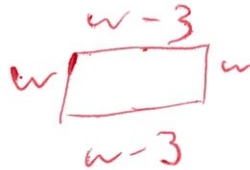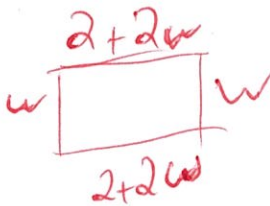
$$3n + 4n - 20$$

$$7n - 20$$

   b. If n =2, how many bales of hay did he move?

$$7(2) - 20 = -6$$

weird answer...

6. Helen is fencing off two areas for her rabbits and her chickens. The length of one area is 2 m more than double its width. The length of the other area is 3 m less than its width.
   a. If the width of both areas is the same, write an expression to describe how much fencing she will require to fence both areas.

$$P = w + w + 2 + 2w + 2 + 2w + w + w + w - 3 + w - 3$$
$$= 10w - 2$$

   b. If the width of both areas is 6 m, how much fencing will she need?

$$P = 10(6) - 2$$
$$= 60 - 2$$
$$= 58m$$