Concept: Adding Expressions

Name:

COMPUTER COMPONENT

Instructions: In UMATH X follow the **Content Menu** path:

Algebra > **Adding Expressions**

Work through all Sub Lessons of the following Lessons **in order**:

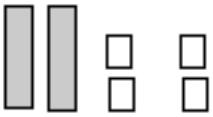
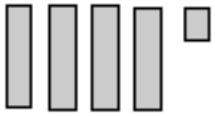
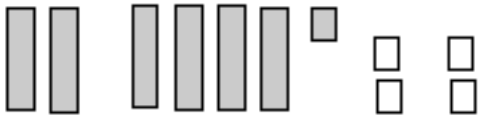
- *Our Problem*
- *Adding Expressions With x and y Tiles*
- *Adding Expressions With x-Squared Tiles*
- *Adding Expressions Without Tiles*

Additional Required Materials: Pencil, colored pencils, ruler

As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

OFF COMPUTER EXERCISES

1. Use tiles and their drawings to help you visualize the combining of expressions.

(a) Represent the expression $2x - 4$ by using tiles. Draw your tiles in the space to the right	
(b) Represent the expression $4x + 1$ by using tiles. Draw your tiles in the space to the right. +	
(c) Re-draw your answers to (a) and (b) with *like* tiles gathered together.	
(d) What is the answer to $2x - 4 + 4x + 1$? ((in tiles) =	
(e) Write the above answer as an expression.	***6x - 3***

2. You may use tiles to help you answer the following questions. *Think:* How might you organize your equation to assist you in offering a more efficient response?

(a) -3x + 1 - x + 4

= -3x –x + 1 + 4

= -4x + 5

(b) 4x - 6x - 2 + 4

= -2x +2

(c) 3x - 4 + 5x + 5 + 4x - 5

= 3x + 5x + 4x -4 + 5 - 5

= 12x - 4

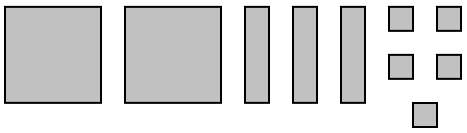
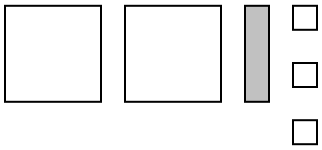
(d) 5 - 3x + 7x - 9

= -3x + 7x + 5 - 9

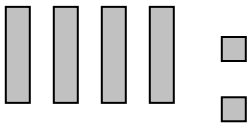
= 4x - 4

3. Write the expression represented by the following tile representations.

Note: Consider a shaded tile to indicate positive, a non-shaded tile to indicate negative

	Tile Representation	***Algebraic Expression***
(a)		$2x^2 + 3x + 5$
(b)		$-2x^2 + x - 3$

4. (a) Combine the tiles in 3(a) and 3(b). Draw the resulting tile representation.



(b) Find the sum of the two expressions in #3.

= (2x² + 3x + 5) + (-2x² + x – 3)

= 2x² – 2x² + 3x + x + 5 -3

= 4x + 2

5. Demonstrate your superior knowledge and challenge yourself to simplify each expression, without using tiles.

Example: **k + 5 + 3k - 6 - 2k**

= k + 3k - 2k + 5 - 6 *(Remember to rearrange and group like terms before finding the answer)*

= 2k - 1

(a) 5 - 3x + 7x – 9

= – 3x + 7x + 5 -9

= 4x - 4

(b) -5x + 3y - 8x + 2y

= -5x – 8x + 3y +2y

= -13x + 5y

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

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

$= 6x^2 + 2x$

(d) 9h - 4h - 4h + 5h

= 6h

(e) $4x^2 - 6x + 3 + 4x^2 + 5x - 1$

$= 4x^2 + 4x^2 – 6x + 5x + 3 - 1$

$= 8x^2 - x + 2$

(f) $3a^2 - 4 + 6a^2 - 6a + 3$

$= 3a^2 + 6a^2 - 6a – 4 + 3$

$= 9a^2 – 6a – 1$

(g) $3x^2 - 4y^2 - 6 + 6x^2 - 4y^2 + 8$

$=3x^2 + 6x^2 – 4y^2 – 4y^2 -6 + 8$

$=9x^2 - 8y^2 + 2$

(h) $-5x^2 + 6x - 2x^2 + 6 - 7 + 2x - 4x + 6x^2$

$= -5x^2 - 2x^2 + 6x^2 + 6x + 2x – 4x + 6 - 7$

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

(i)
$$\begin{array}{r} 4x + 3y \\ +\ 2x + 5y \\ \hline \end{array}$$

= 6x + 8y

(j)
$$\begin{array}{r} 10y - 4z \\ +\ 4y + 6z \\ \hline \end{array}$$

= 14x + 2z

(k)
$$\begin{array}{r} 2a + 4b \\ +\ -3z - 6b \\ \hline \end{array}$$

= 2a -3z -2b

(l) $a^2 + 3b^2 - 2c^2 + 5b - 7a + 3c - 4b - 3a^2 - 10c^2 + 6b^2$

$= a^2 – 3a^2 + 3b^2 + 6b^2 – 2c^2 -10c^2 - 7a + 5b – 4b + 3c$

$= - 2a^2 + 9b^2 – 12c^2 – 7a + b + 3c$