



STUDENT _____ GROUP _____

INSTRUCTOR _____ DATE _____

Math Lab Lesson #6 Group Activity:
 Multiplying Binomials and Factoring Quadratics

★ **ACTIVITY LAUNCH: ASSESSING STUDENT WORK**

On the Opening Assessment test in September, two students wrote the following:

STUDENT #1	STUDENT #2
$(x+5)^2 = (x^2+25)^1$	$(x-1)(x-1)$ $x^2 - 1x - 1x + 2$ $\boxed{x^2 - 2x + 2}$

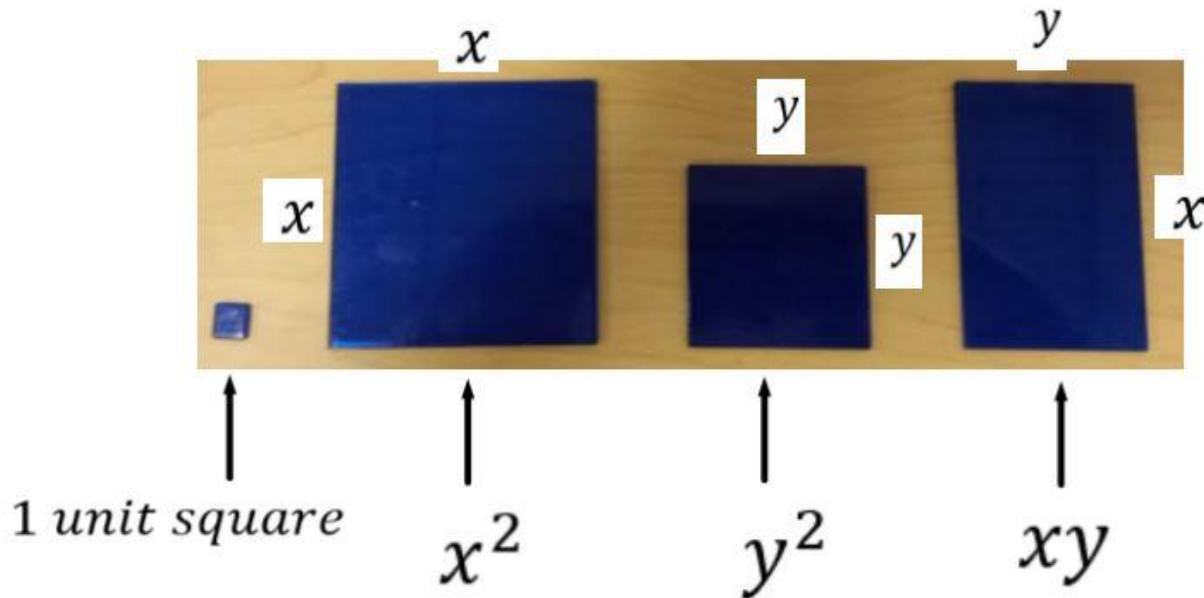
What do you think about these answers?



ACTIVITY: THE AREA MODEL OF MULTIPLICATION

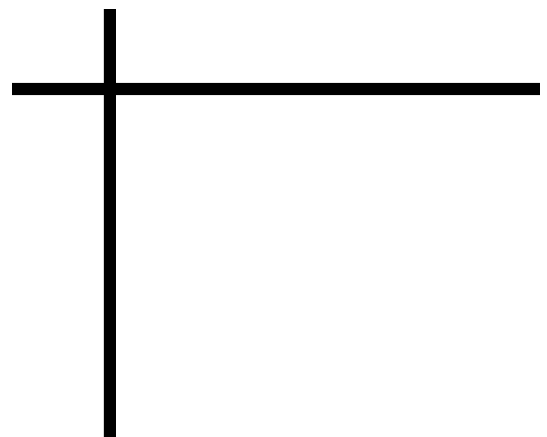
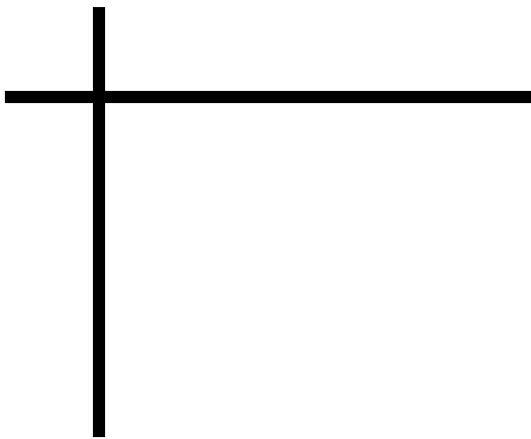
Today you are going to use Algebra Tiles to represent multiplication of linear terms using the area model of multiplication. Here is how the Algebra Tiles work:

- **Blue** tiles represent **positive** values, and **red** tiles represent **negative** values. Make sure to use the correct color tiles to represent the products!
- Here is what some of the square tiles represent:



- You also have tiles with length x and width 1, and tiles with length y and width 1 (try to find them!)

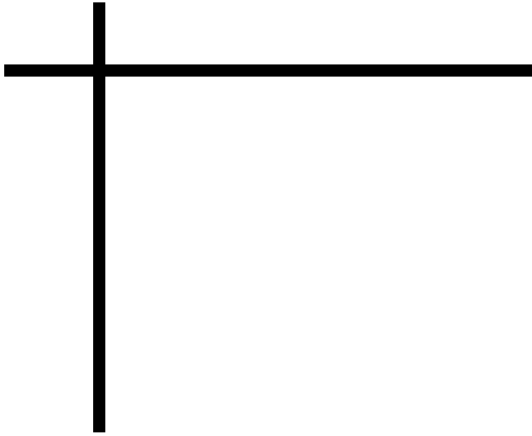
EXAMPLES:





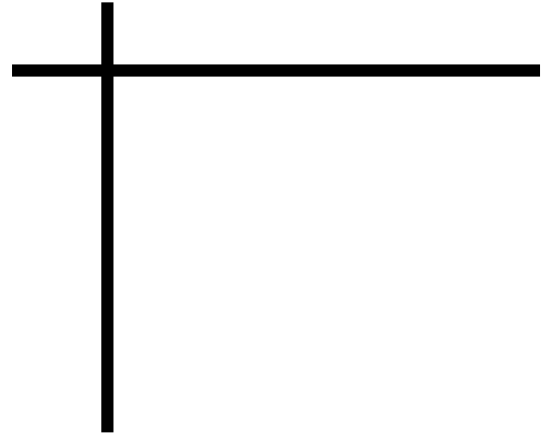
Now you try! Use the Algebra Tiles to find the following products, and draw a sketch of your result in the boxes below:

1.



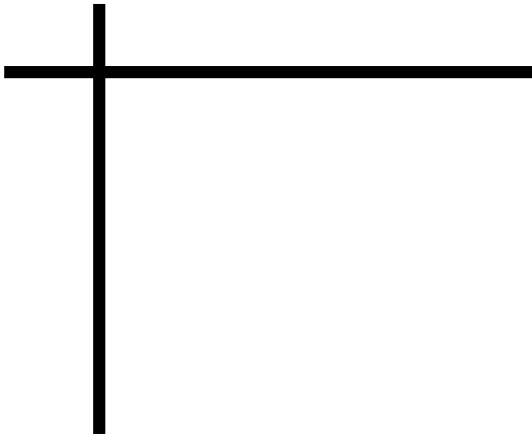
$$(x + 1)(x + 1) \text{ or } (x + 1)^2$$

2.



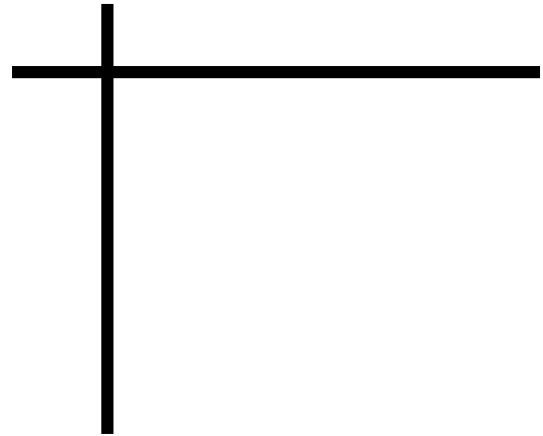
$$(x - 1)(x - 1) \text{ or } (x - 1)^2$$

3.



$$(x + 1)(x - 1)$$

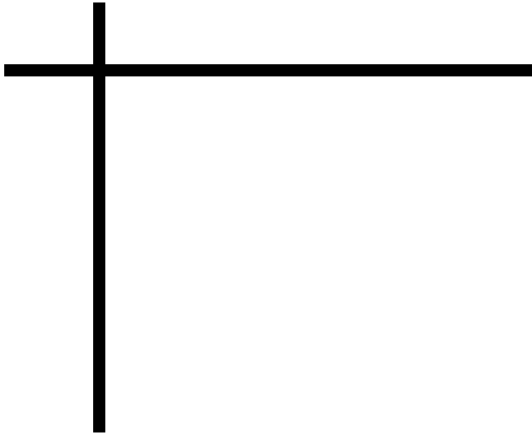
4.



$$(x + 2)(x - 2)$$



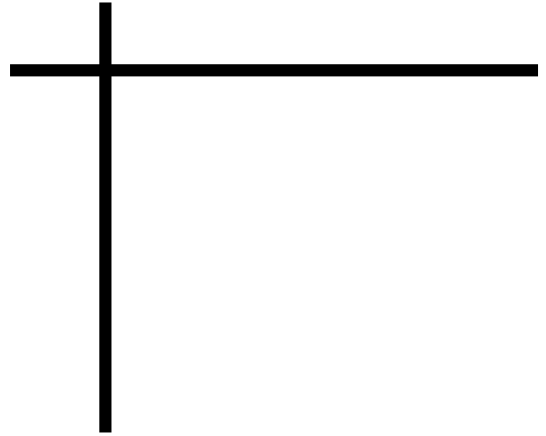
5.



$$(x - y)(x - y) \text{ or } (x - y)^2$$

*What does this have to do with #2?

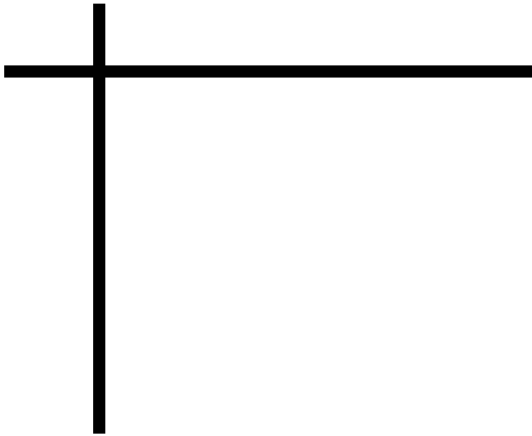
6.



$$(x - y)(x + y)$$

*What does this have to do with #3 and #4?

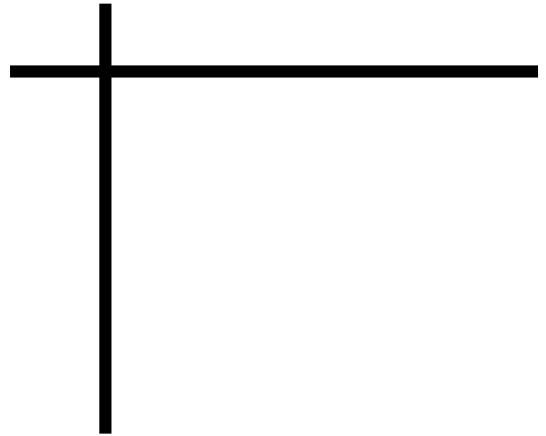
7.



$$(y - x)(y + x)$$

*What does this have to do with #6?

8.



$$(y + 4)(y - 2)$$



GREAT JOB! NOW TRY THESE:

9.



$$(2x + 3)(x - 1)$$

10.

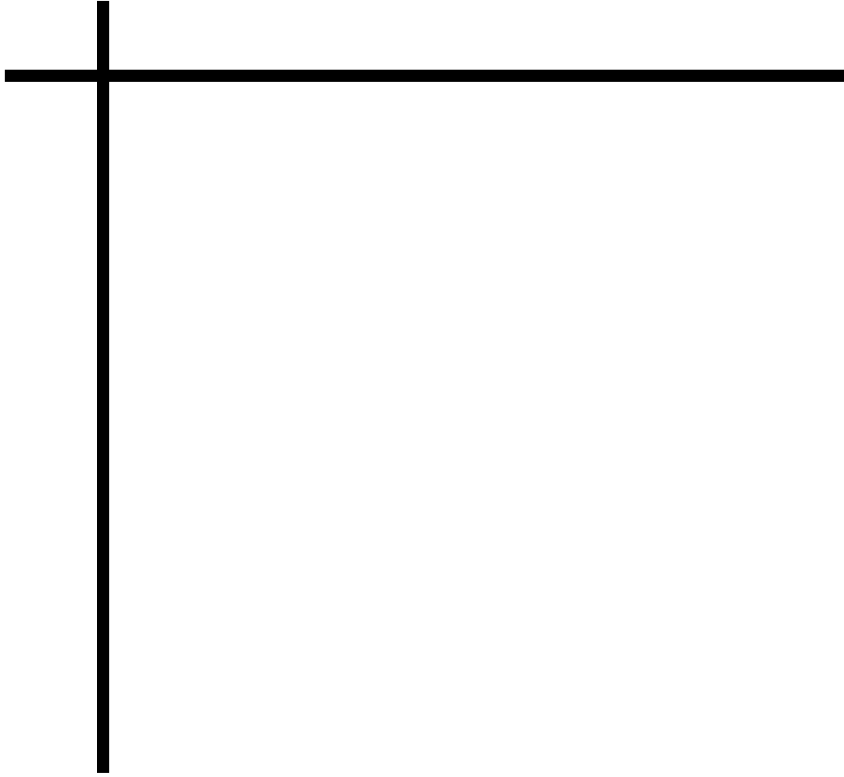


$$(-x - y)(-x + y)$$

*What does this have to do with #6

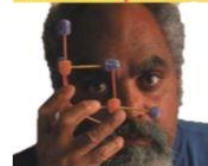


11. MATH IS BEAUTIFUL ☺



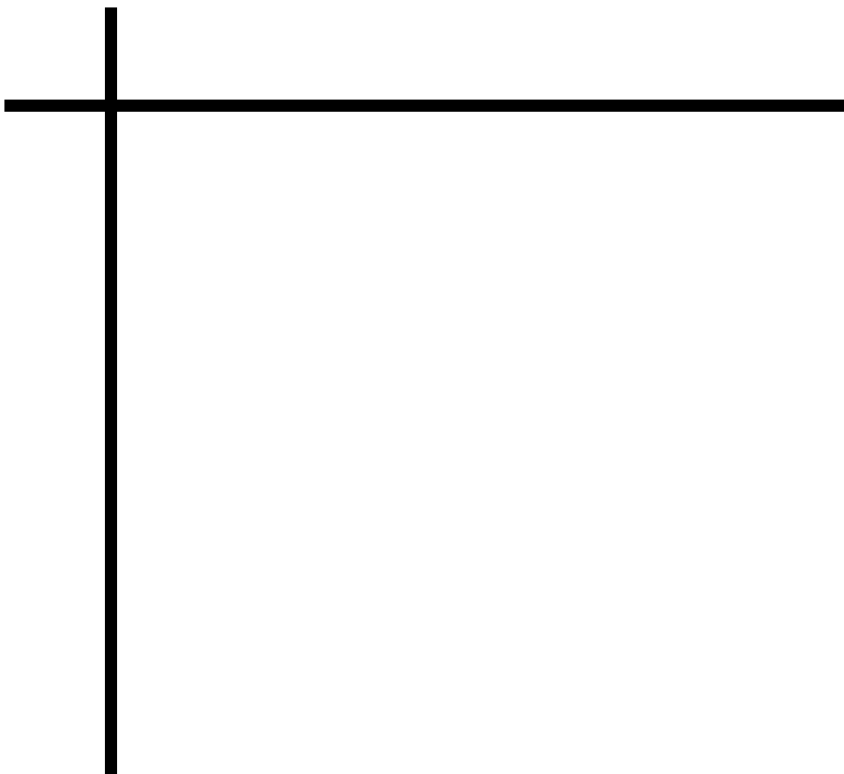
$$(x - y + 1)(-x + y - 1)$$

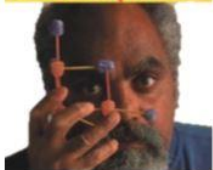
KEEP GOING →

**BOSS LEVEL**

The product in #11 was a colorful red-blue checkerboard pattern with nine (9) total small areas.

1. Create a product with 9 small areas and the same checkerboard pattern except that all the red (negative) areas turn to blue, and all the blue (positive) areas turn to red. What product does this represent?





2. Create a product with 9 small areas where only one diagonal is all red, as shown below.

What do you notice?

