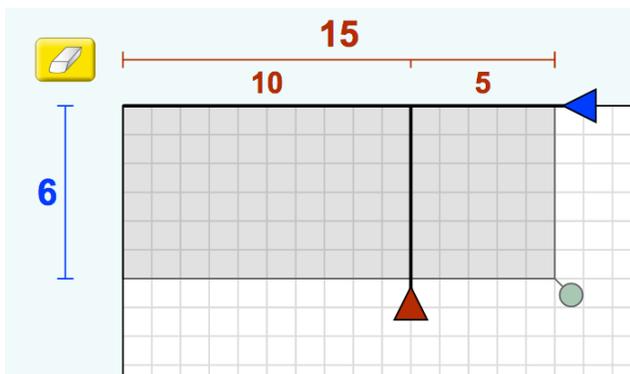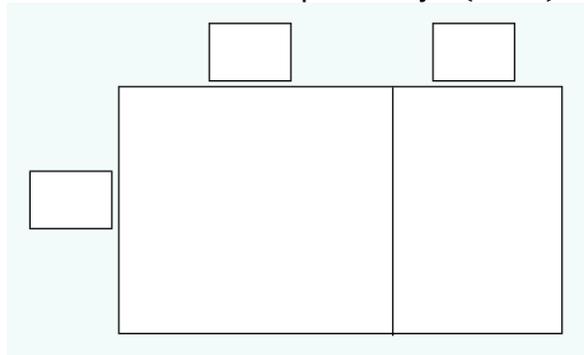Name: _____ Date: _____ Class: _____

EXPANDING AND FACTORING EXPRESSIONS

1. Play with the Area Model sim for 5 minutes. Write down three questions or observations that you have.

2. Use the sim to explain why $6(15) = 6(10) + 6(5)$.

3. Use the sim to explain why $6(x - 5) = 6x - 30$.

4. Understanding an area model:
   a. How do the interior numbers (partial products) get calculated?

   b. How does total area get calculated?

5. The Area Model sim is playing tricks on you! It gives you the interior numbers, but not the exterior numbers. What numbers must be on the outside of this area model? 💬

	4x	12
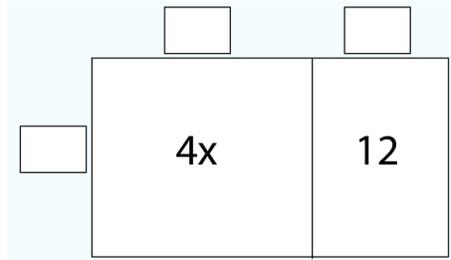
6. Complete the table below *without using the sim*. Use the Variables screen to check your answers.

Factored form	Expanded form
$3(x + 2)$	
$7(x + 5)$	
	$2x + 12$
	$8x + 4$
$-2(2x + 4)$	
	$5x - 25$

7. For your birthday party, you plan to buy 2 cupcakes for each guest and 5 additional cupcakes to have as extras. Cupcakes cost $2.25 each. Let x represent the number of guests you invite to your party. Use this factored expression: $2.25(2x + 5)$
   a. What does each *factor* of the expression represent? What does the *expression* represent?
   b. Use the distributive property to expand the expression. What does each term of your new expression represent?