Name: _____ Date: _____ Period: _____

Distributive Property Using PhET

Learning Goals:

Demonstrate the ability to use the distributive property with expressions accurately

1. Go to the Area Model Algebra PhET simulation and choose the explore option. **Explore** making sure you note what each button does in the simulation.

2. **Discuss** with a partner, what observations did you find while playing?

3. **STOP** Discuss your answer for #2 with a partner before you move on.

4. Now select the "Variables" option found at the bottom of your screen. In the top right corner, select "1x2" as your option.

a. Enter "5" and "x + 2" as your options. Put each product in the drawing below.
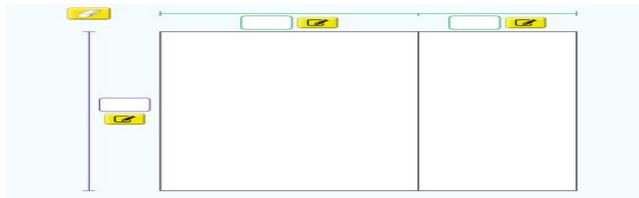
Total Area: _____

b. Enter "-3" and "2x + 5" as your options. Put each product in the drawing
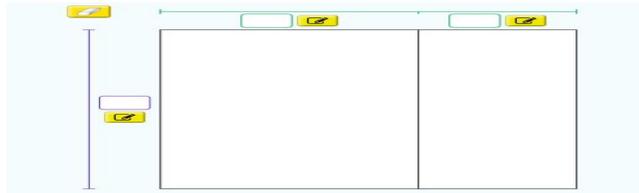
Total Area: _____

c. Enter "-7" and ""-3x - 2" as your options. Put each product in the drawing below.
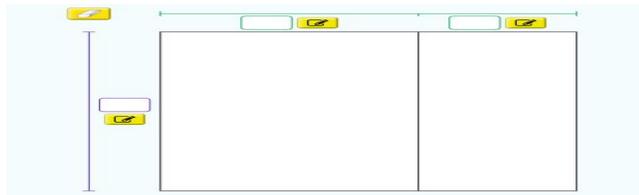
Total Area: _____

5. Now we will try to go backwards. Given the total area, find dimensions that work. Use the sim to check your answers.

   a.
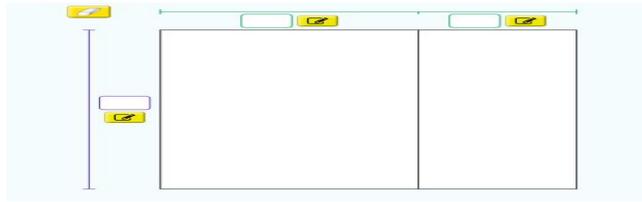
   Total Area: 4x + 16

   b.
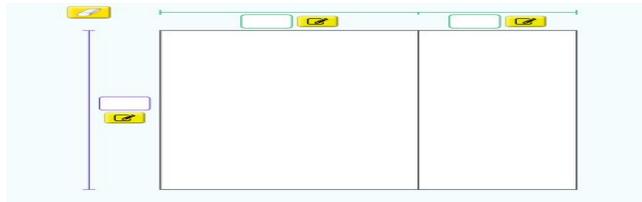
   Total Area: 4x + 16 different than 4a.

   c.
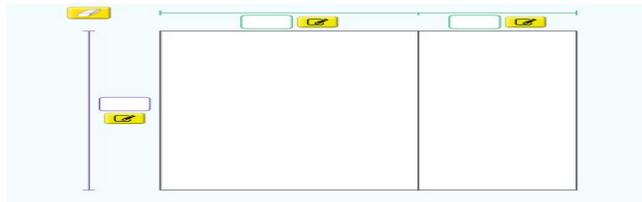
   Total Area: -3x + 12

6. Now, select 2x2 as the dimensions in the top right corner.

   a. Enter x + 7 and 2x - 8 for your two dimensions. Enter your product below.
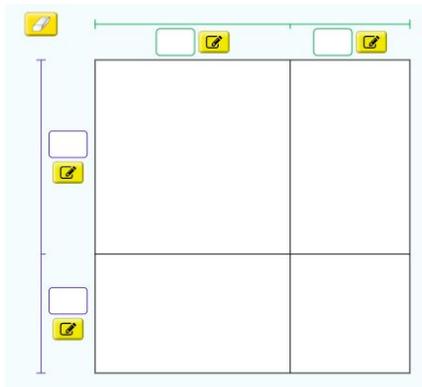
   Total Area: _____

   b. Challenge: Find the dimensions that provide a total area of $12x^2 - 32x + 16$
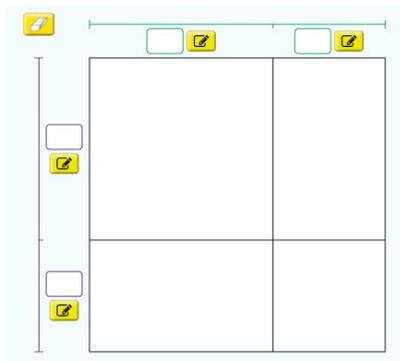
7. Go to Game at the bottom of the screen. Play! What do you notice?