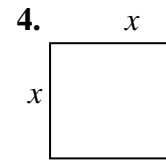
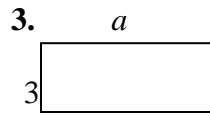
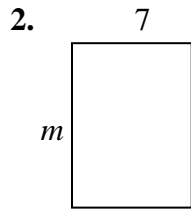
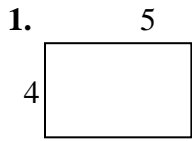


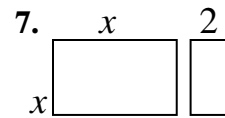
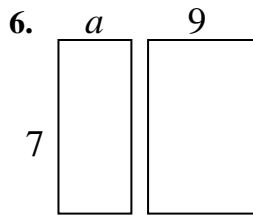
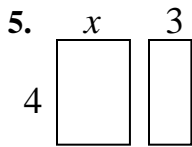
# Distributive Property Using Area

NAME \_\_\_\_\_

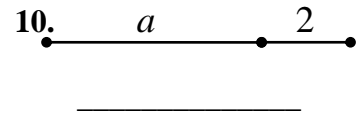
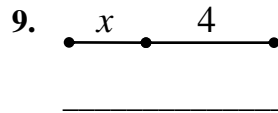
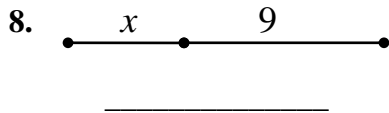
Write the expression that represents the area of each rectangle.



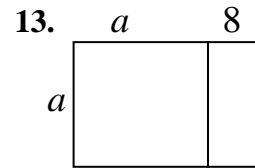
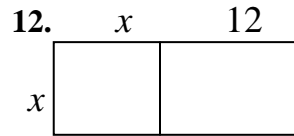
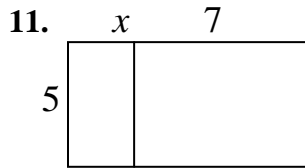
Find the area of each box in the pair.



Write the expression that represents the total length of each segment.



Write the area of each rectangle as the product of *length*  $\times$  *width* and also as a sum of the areas of each box.



AREA AS PRODUCT	AREA AS SUM
$5(x+7)$	$5x+35$

AREA AS PRODUCT	AREA AS SUM

AREA AS PRODUCT	AREA AS SUM

This process of writing these products as a sum uses the **distributive property**.

Use the distributive property to re-write each expression as a sum. You may want to draw a rectangle on a separate page to follow the technique above.

14.  $4(x+7) =$  \_\_\_\_\_

15.  $7(x-3) =$  \_\_\_\_\_

16.  $-2(x+4) =$  \_\_\_\_\_

17.  $x(x+9) =$  \_\_\_\_\_

18.  $a(a-1) =$  \_\_\_\_\_

19.  $3m(m+2) =$  \_\_\_\_\_

20.  $-4(a-4) =$  \_\_\_\_\_

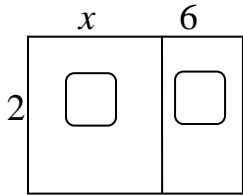
21.  $a(a-12) =$  \_\_\_\_\_

# Factoring a Common Factor Using Area

NAME \_\_\_\_\_

Fill in the missing information for each: dimensions, area as product, and area as sum

1.



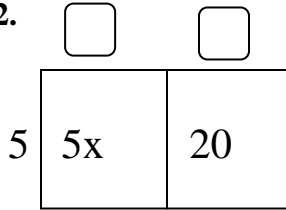
\_\_\_\_\_

2(x+6)

\_\_\_\_\_

2x+12

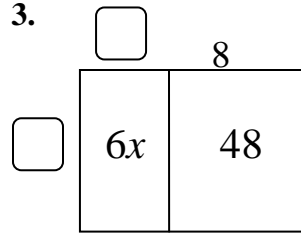
2.



\_\_\_\_\_

\_\_\_\_\_

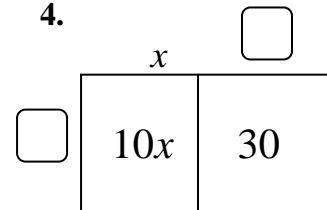
3.



\_\_\_\_\_

\_\_\_\_\_

4.

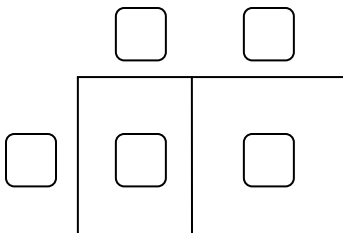


\_\_\_\_\_

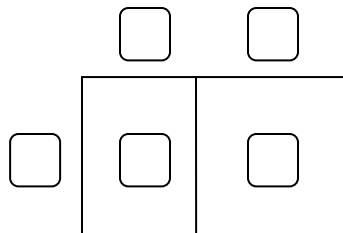
\_\_\_\_\_

Fill in the missing dimensions from the expression given.

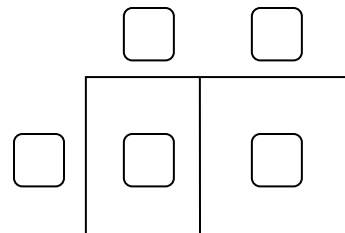
5.  $5x + 35 = 5(\text{_____})$



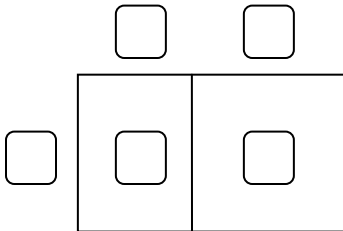
6.  $2x + 12 = 2(\text{_____})$



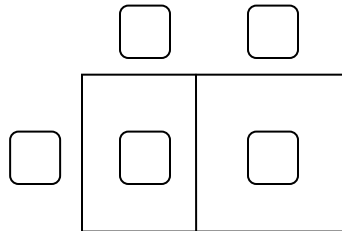
7.  $3x - 21 = \text{_____}(\text{_____})$



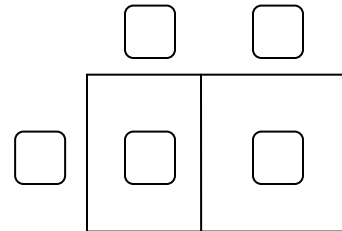
8.  $7x - 21 = \text{_____}(\text{_____})$



9.  $-3x - 15 = -3(\text{_____})$



10.  $-5x + 45 = \text{_____}$



This process of writing a sum or difference as the product of factors is called **factoring**.

Factor these:

11.  $4x - 16 = \text{_____}$

12.  $-7x - 35 = \text{_____}$

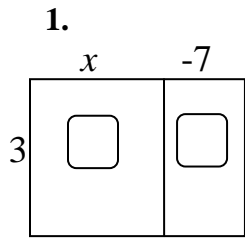
13.  $9x - 81 = \text{_____}$

14.  $4x + 18 = \text{_____}$

# More Factor Using Area

NAME \_\_\_\_\_

Fill in the missing information for each: dimensions, area as product, and area as sum

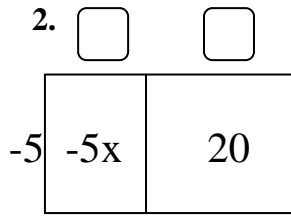


\_\_\_\_\_

$3(x-7)$

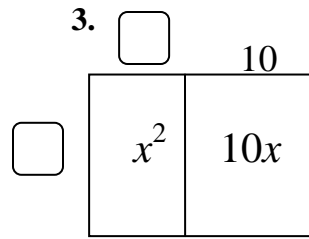
\_\_\_\_\_

$3x-21$



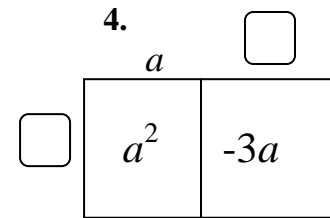
\_\_\_\_\_

\_\_\_\_\_



\_\_\_\_\_

\_\_\_\_\_

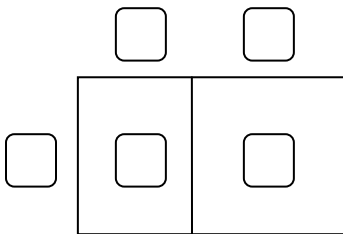


\_\_\_\_\_

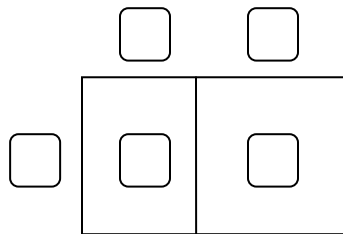
\_\_\_\_\_

Fill in the missing dimensions from the expression given.

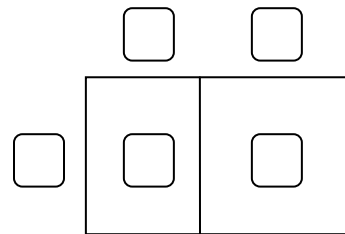
5.  $x^2 + 3x = x(\text{_____})$



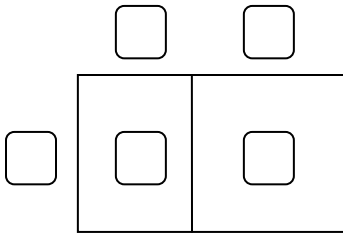
6.  $x^2 + 5x = x(\text{_____})$



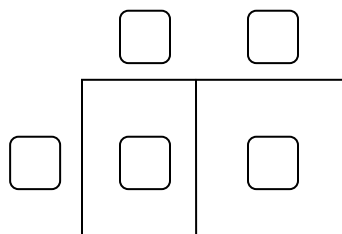
7.  $6x + 21 = 3(\text{_____})$



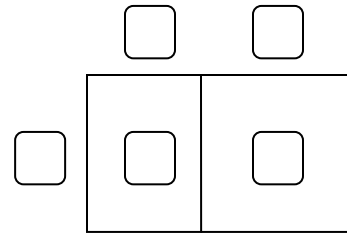
8.  $4x - 10 = \text{_____}$



9.  $a^2 - 5a = \text{_____}$



10.  $m^2 + m = \text{_____}$



When factoring expression, you have to consider that the common factor may be a variable instead of (or addition to) a number.

Factor these:

11.  $t^2 - 6t = \text{_____}$

12.  $10x - 35 = \text{_____}$

13.  $6x + 21 = \text{_____}$

14.  $9a^2 - 15a = \text{_____}$

# Greatest Common Factor

NAME \_\_\_\_\_

Complete the factorization for each:

1.

a.  $3x^2 + 15x = 3(\text{_____})$

b.  $3x^2 + 15x = x(\text{_____})$

c.  $3x^2 + 15x = 3x(\text{_____})$

2. Which of the above factorizations for  $3x^2 + 15x$  do you think is the 'best'? Why?

\_\_\_\_\_

3.

a.  $4a^2 - 12a = 4(\text{_____})$

b.  $4a^2 - 12a = a(\text{_____})$

c.  $4a^2 - 12a = 4a(\text{_____})$

4. Which of the above factorizations for  $4a^2 - 12a$  do you think is the best? Why?

\_\_\_\_\_

In each case the third factorization is the *best* because you've factored out the **greatest common factor (GCF)**.

Factor each expression below. Be sure to find and use the *greatest* common factor.

5.  $5x^2 + 15x = \text{_____}$

6.  $3x^2 + 12x = \text{_____}$

7.  $6x - 4 = \text{_____}$

8.  $7x^2 - 9x = \text{_____}$

9.  $5x^2 + 5x = \text{_____}$

10.  $9a^2 - 12a = \text{_____}$