

p.44-45      Factoring Intro      Sect. 4.4

Warm-up: Pick up the handout P.44  
 "Distributive Property Using Area"

Complete # 1 - 4. Put the area inside each box.

p. 44

**Distributive Property Using Area**      NAME \_\_\_\_\_

Write the expression that represents the area of each rectangle.

1.  $\begin{array}{c} 5 \\ \square \\ 4 \end{array}$   $20$

2.  $\begin{array}{c} 7 \\ \square \\ m \end{array}$   $7m$

3.  $\begin{array}{c} a \\ \square \\ 3 \end{array}$   $3a$

4.  $\begin{array}{c} x \\ \square \\ x \end{array}$   $x^2$

Find the area of each box in the pair.


5.  $\begin{array}{c} x \quad 3 \\ \square \quad \square \\ 4 \end{array}$   $4x \quad 12$


6.  $\begin{array}{c} a \quad 9 \\ \square \quad \square \\ 7 \end{array}$   $7a \quad 63$


7.  $\begin{array}{c} x \quad 2 \\ \square \quad \square \\ x \end{array}$   $x^2 \quad 2x$

p. 44

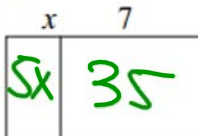
Write the expression that represents the total length of each segment.

8.   
 $x+9$

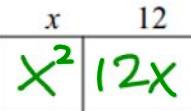
9.   
 $x+4$

10.   
 $a+2$

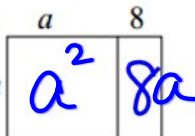
Write the area of each rectangle as the product of *length*  $\times$  *width* and also as a sum of the areas of each box.

11.   

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

12.   

AREA AS PRODUCT	AREA AS SUM
$x(x+12)$	$x^2+12x$

13.   

AREA AS PRODUCT	AREA AS SUM
$a(a+8)$	$a^2+8a$

p. 44

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.  $4(x+7) = 4x+28$

16.  $-2(x+4) = -2x-8$

18.  $a(a-1) = a^2-1a$

20.  $-4(a-4) = -4a+16$

15.  $7(x-3) = 7x-21$

17.  $x(x+9) = x^2+9x$

19.  $3m(m+2) = 3m^2+6m$

21.  $a(a-12) = a^2-12a$

p. 45

**Factoring a Common Factor Using Area**

NAME \_\_\_\_\_

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

	1.	2.	3.	4.
	$x$ $6$	$x$ $4$	$x$ $8$	$x$ $3$
<b>Dimensions</b>	$2$ $2$	$5$ $4$	$6$ $8$	$10$ $3$
	$2x$ $12$	$5x$ $20$	$6x$ $48$	$10x$ $30$
<b>Area as product</b>	$2(x+6)$	$5(x+4)$	$6(x+8)$	$10(x+3)$
<b>Area as sum</b>	$2x+12$	$5x+20$	$6x+48$	$10x+30$

Area as a sum

Area as a product

Fill in the missing dimensions from the expression given.

5. $5x+35=5(x+7)$	6. $2x+12=2(x+6)$	7. $3x-21=3(x-7)$
$5$ $7$	$2$ $6$	$3$ $-7$
$5x$ $35$	$2x$ $12$	$3x$ $-21$
8. $7x-21=7(x-3)$	9. $-3x-15=-3(x+5)$	10. $-5x+45=-5(x-9)$
$7$ $-3$	$-3$ $5$	$-5$ $-9$
$7x$ $-21$	$-3x$ $-15$	$-5x$ $45$

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

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

Factor these:  
11.  $4x - 16 = \underline{4(x - 4)}$

13.  $9x - 81 = \underline{9(x - 9)}$

12.  $-7x - 35 = \underline{-7(x + 5)}$

14.  $4x + 18 = \underline{2(2x + 9)}$

Homework time...

problems 1-6