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.

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Distributive Property Using Area NAME _____

Write the expression that represents the area of each rectangle.

1. 5 / 4 | 20

2. 7 / m | $7m$

3. a / 3 | $3a$

4. x / x | x^2

Find the area of each box in the pair.

5. x 3 / 4 | $4x$ | 12

6. a 9 / 7 | $7a$ | 63

7. x 2 / x | x^2 | $2x$

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

8. x 9 — $x+9$

9. x 4 — $x+4$

10. a 2 — $a+2$

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

11.

	x	7
5	$5x$	35

Area as Product	Area as Sum
$5(x+7)$	$5x+35$

12.

	x	12
x	x^2	$12x$

Area as Product	Area as Sum
$x(x+12)$	x^2+12x

13.

	a	8
a	a^2	$8a$

Area as Product	Area as Sum
$a(a+8)$	a^2+8a

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

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

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

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

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

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

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

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

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Factoring a Common Factor Using Area

NAME _____

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

Dimensions

1. x | 6
   2 | $2x$ | 12

2. X | 4
   5 | $5x$ | 20

3. X | 8
   6 | $6x$ | 48

4. x | 3
   10 | $10x$ | 30

Area as product: 1. $2(x+6)$ 2. $5(x+4)$ 3. $6(x+8)$ 4. $10(x+3)$

Area as sum: 1. $2x+12$ 2. $5x+20$ 3. $6x+48$ 4. $10x+30$

Area as a sum

Area as a product

Fill in the missing dimensions from the expression given.

5. $5x+35=5(X+7)$

	X	7
5	$5x$	35

6. $2x+12=2(X+6)$

	X	6
2	$2x$	12

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

	X	-7
3	$3x$	-21

8. $7x-21=7(X-3)$

	X	-3
7	$7x$	-21

9. $-3x-15=-3(X+5)$

	X	5
-3	$-3x$	-15

10. $-5x+45=-5(X-9)$

	X	-9
-5	$-5x$	45

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

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Factor these:

11. $4x-16=$ $4(x-4)$

12. $-7x-35=$ $-7(x+5)$

13. $9x-81=$ $9(x-9)$

14. $4x+18=$ $2(2x+9)$

Homework time...

problems 1-6