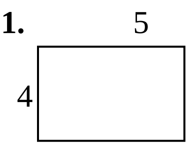
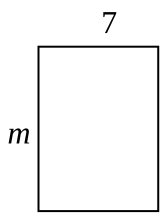
Distributive Property Using Area

NAME ______________________________

Write the expression that represents the area of each rectangle.

1.


2.


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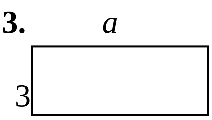

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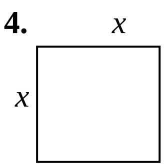
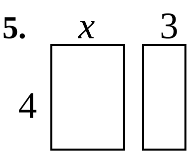
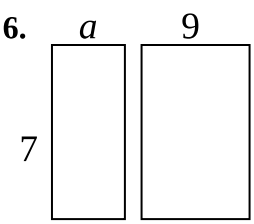
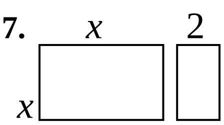


Find the area of each box in the pair.

5.


6.


7.


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

8.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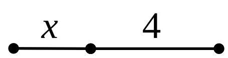
9.


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10.


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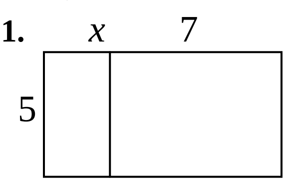
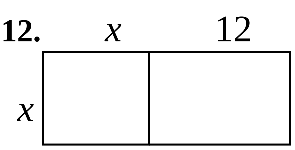
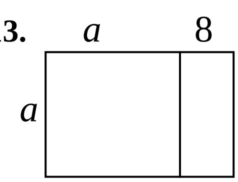
Write the area of each rectangle as the product of ***length***$\times$***width*** and also as a sum of the areas of each box.

11.


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

12.


AREA AS PRODUCT	AREA AS SUM

13.


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. $a(a-12) =$ ___________

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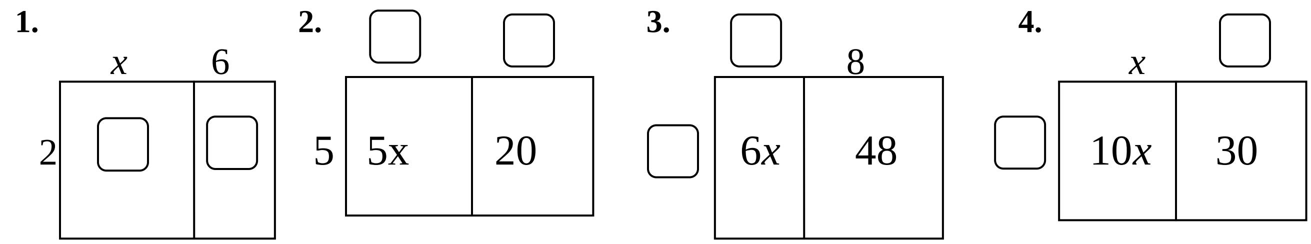
Factoring a Common Factor Using Area

NAME ____________________________

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

1. **2.** **3.** **4.**

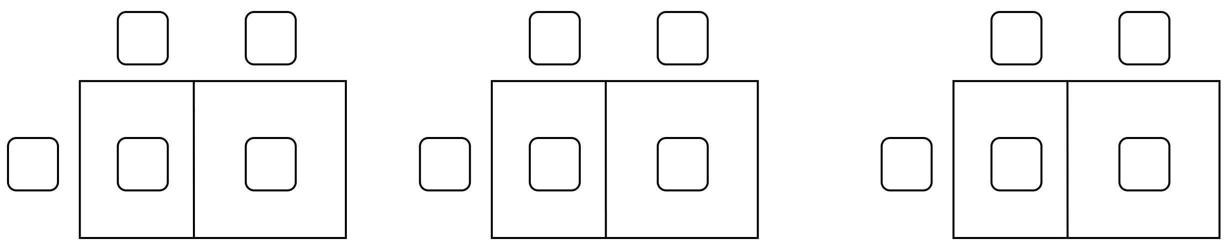


2(x+6) ____________ ____________ ____________

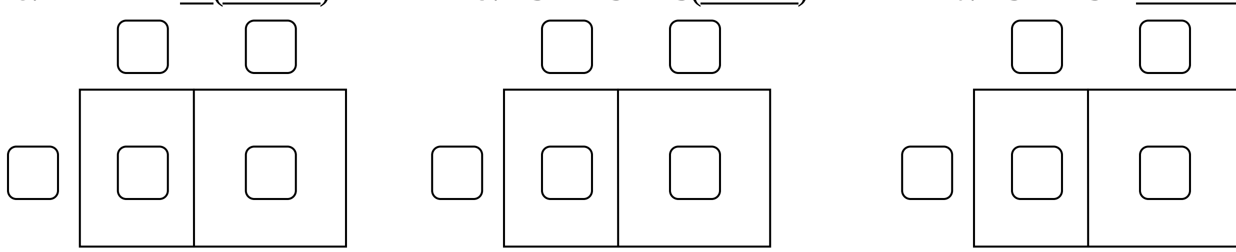
2x+12 ____________ ____________ ____________

Fill in the missing dimensions from the expression given.

5. $5x + 35 = 5(\_\_\_\_\_\_)$ **6.** $2x + 12 = 2(\_\_\_\_\_\_)$ **7.** $3x - 21 = \_\_(\_\_\_\_\_\_)$



8. $7x - 21 = \_\_(\_\_\_\_\_\_)$ **9.** $-3x - 15 = -3(\_\_\_\_\_\_)$ **10.** $-5x + 45 = \_\_\_\_\_\_\_\_$



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

Factor these:

11. $4x - 16 =$ ______________ **12.** $-7x - 35 =$ _______________

13. $9x - 81 =$ ______________ **14.** $4x + 18 =$ ___________

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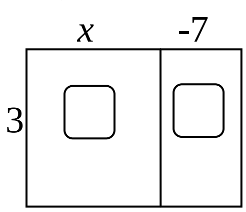
More Factor Using Area

NAME ____________________________

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

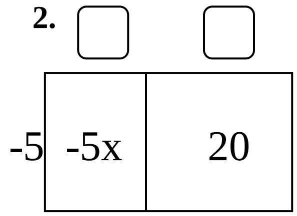
1.



$3(x-7)$

$3x-21$

2.



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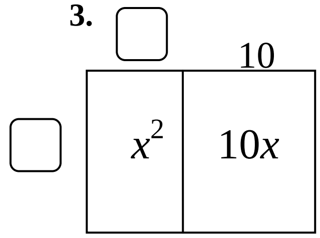
3.



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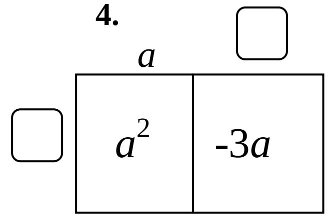
4.



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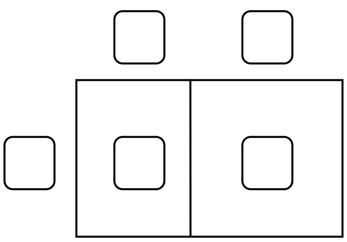
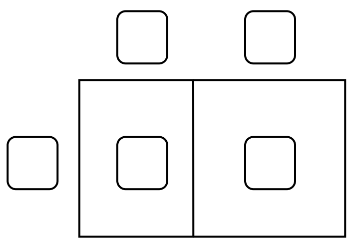
Fill in the missing dimensions from the expression given.

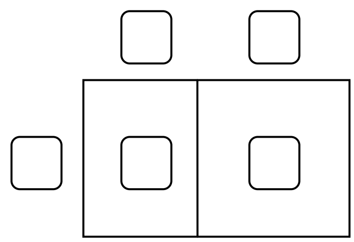
5. $x^2 + 3x = x(\_\_\_\_\_\_)$



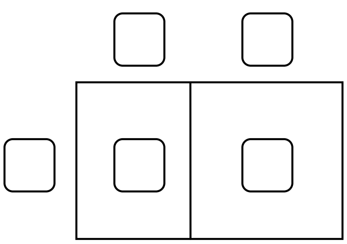
6. $x^2 + 5x = x(\_\_\_\_\_\_)$



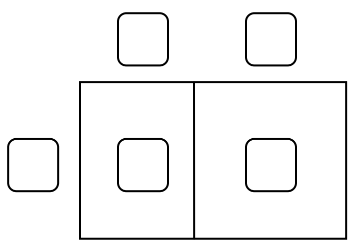
7. $6x + 21 = 3(\_\_\_\_\_\_)$



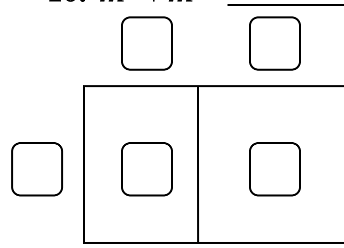
8. $4x - 10 =$ _________



9. $a^2 - 5a =$ __________



10. $m^2 + m =$ _________



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. $t^2 - 6t =$ ______________

12. $10x - 35 =$ _______________

13. $6x + 21 =$ ___________

14. $9a^2 - 15a =$ ______________

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Greatest Common Factor

NAME ___________________________

Complete the factorization for each:

1.

a. $3x^2+15x=3(\_\_\_\_\_\_\_)$ b. $3x^2+15x=x(\_\_\_\_\_\_\_)$ c. $3x^2+15x=3x(\_\_\_\_\_\_\_)$

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

____

3.

a. $4a^2-12a=4(\_\_\_\_\_\_\_)$ b. $4a^2-12a=a(\_\_\_\_\_\_\_)$ c. $4a^2-12a=4a(\_\_\_\_\_\_\_)$

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. $5x^2+15x=$ ___________

6. $3x^2+12x=$ ___________

7. $6x-4=$ ___________

8. $7x^2-9x=$ ___________

9. $5x^2+5x=$ ___________

10. $9a^2-12a=$ ___________

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