JCPS

JEFFERSON COUNTY PUBLIC SCHOOLS DIGITAL: NTI

Supplemental Practice for

ALGEBRA 2 & SENIOR MATH

Packet #3

The material in this packet is to be used as extra practice for students who would like to extend their learning once they have completed the Choice Boards for their grade level.

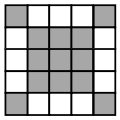
The expected time frame for this practice is approximately 2 weeks.

Task: Sidewalk Patterns

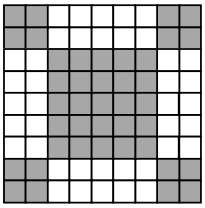
Sidewalk Patterns

In Prague some sidewalks are made of small square blocks of stone.

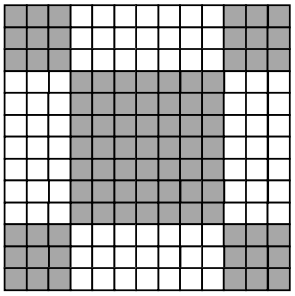
The blocks are in different shades to make patterns that are in various sizes.



Pattern #1

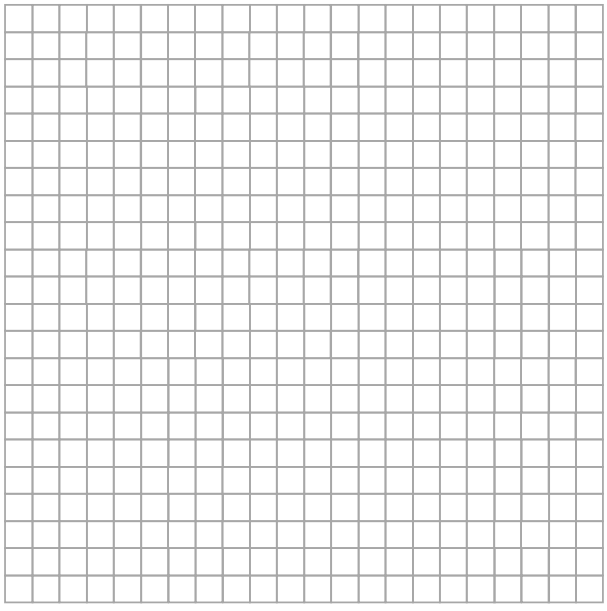


Pattern #2



Pattern #3

Draw the next pattern in this series.



Pattern #4

1. Complete the table below

Pattern number, *n*	1	2	3	4
Number of white blocks	12	40		
Number of gray blocks	13			
Total number of blocks	25			

2. What do you notice about the number of white blocks and the number of gray blocks?

_____

3. The total number of blocks can be found by squaring the number of blocks along one side of the pattern.

   a. Fill in the blank spaces in this list.

   $25 = 5^2$ $\quad 81 =$ _____ $\quad 169 =$ _____ $\quad 289 = 17^2$

   b. How many blocks will pattern #5 need? _____

   c. How many blocks will pattern #*n* need? _____

4. a. If you know the total number of blocks in a pattern you can work out the number of white blocks in it. Explain how you can do this.

_____

_____

   b. Pattern # 6 has a total of 625 blocks.
   How many white blocks are needed for pattern #6? _____
   Show how you figured this out.

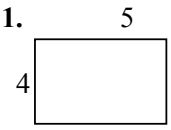
Task: Distributive Property Using Area

Distributive Property Using Area

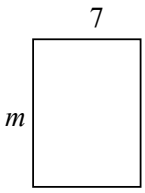
NAME _____

Write the expression that represents the area of each rectangle.

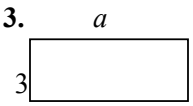
1.



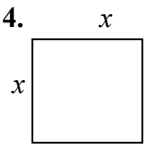
2.



3.

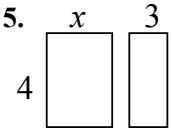


4.

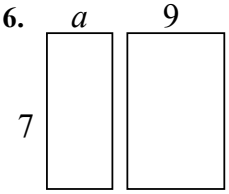


Find the area of each box in the pair.

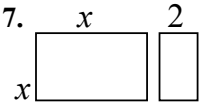
5.



6.

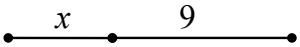


7.



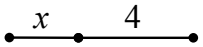
Write the expression that represents the total length of each segment.

8.



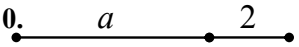
_____

9.



_____

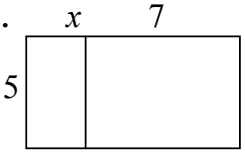
10.



_____

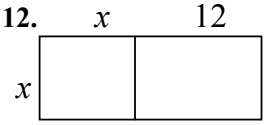
Write the area of each rectangle as the product of ***length*** × ***width*** and also as a sum of the areas of each box.

11.



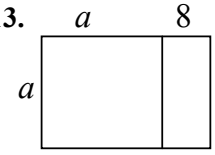
AREA AS PRODUCT	AREA AS SUM
5(x+7)	5x+35

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. $a(a-12)=$_____

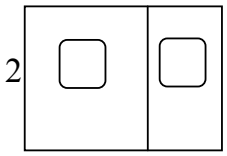
Task: Factoring a Common Factor Using Area

Factoring a Common Factor Using Area

NAME _____

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

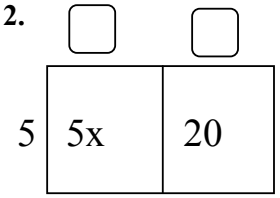
1.



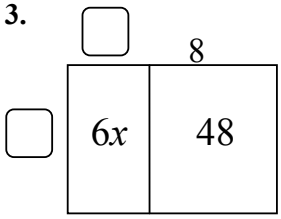
2(x+6)

2x+12

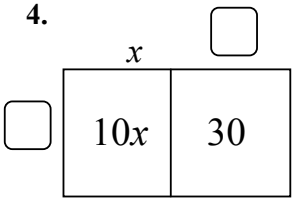
2.



3.

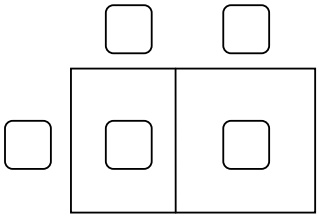


4.

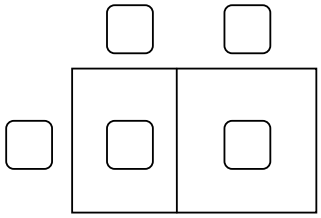


Fill in the missing dimensions from the expression given.

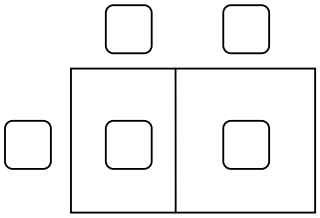
5. $5x+35=5(\_\_\_\_\_)$



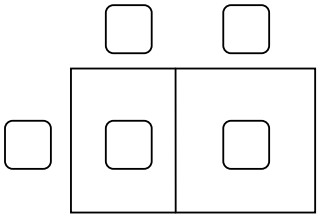
6. $2x+12=2(\_\_\_\_\_)$



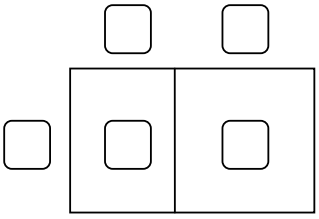
7. $3x-21=\_\_(\_\_\_\_\_)$



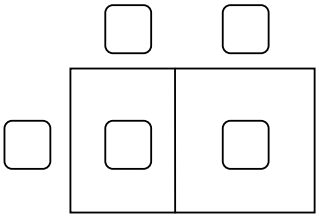
8. $7x-21=\_\_(\_\_\_\_\_)$



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. $4x+18=$ _____