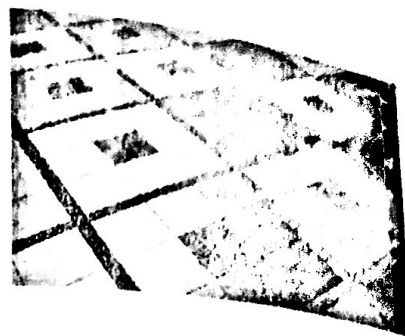


Lesson 1 Checkerboard Borders

A Develop Understanding Task

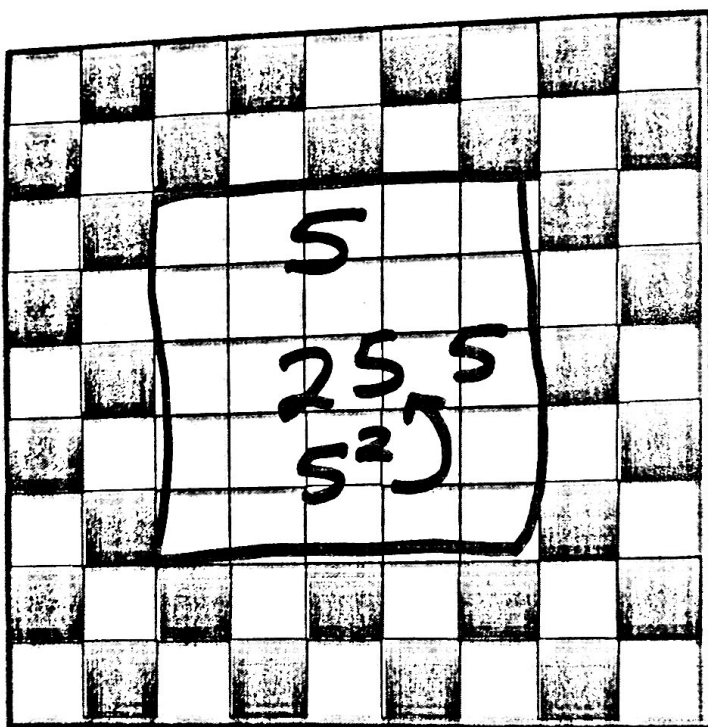


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In preparation for back to school, the school administration plans to replace the tile in the cafeteria. They would like to have a checkerboard pattern of tiles two rows wide as a surround for the tables and serving carts.

Below is an example of the border that the administration is thinking of using to surround a square 5×5 set of tiles.

- A. Find the number of colored tiles in the checkerboard border. Track your thinking and find a way of calculating the number of colored tiles in the border that is quick and efficient. Be prepared to share your strategy and justify your work.



Total: 28

① counted

② $4(4) + 4(5)$

$$16 + 9 = 25$$

~~9x9=81~~

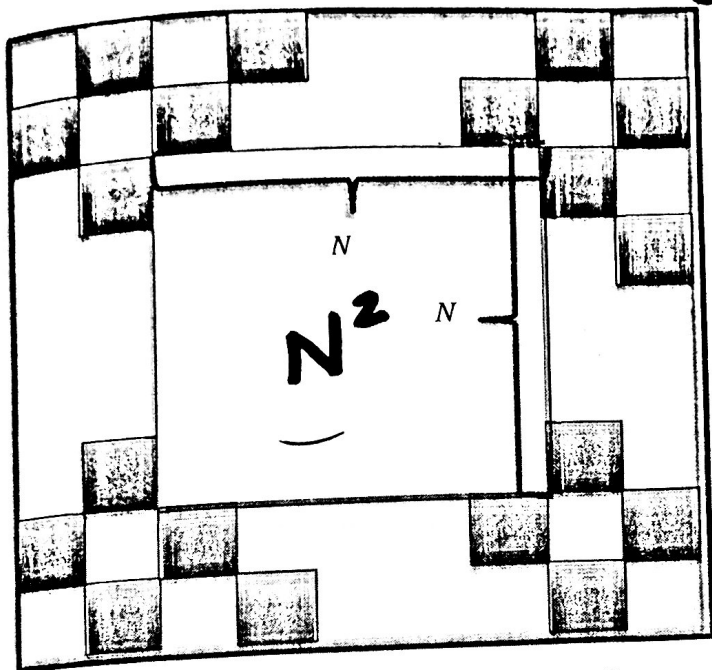
$$9 \cdot 9 = 81 - 25 = \frac{56}{2} = 28$$

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- B. The contractor that was hired to lay the tile in the cafeteria is trying to generalize a way to calculate the number of colored tiles needed for a checkerboard border surrounding a square of tiles with any dimensions. To represent this general situation, the contractor started sketching the square below.
- Find an expression for the number of colored border tiles needed for any $N \times N$ square center.



→ terms being added or subtracted
 No equal sign

Area of whole figure - Area of middle

$$\frac{(n+4)^2 - n^2}{2}$$



Name _____

Period _____

READY

Topic: Recognizing Solutions to Equations

The solution to an equation is the value of the variable that makes the equation true. In the equation $9a + 17 = -19$, "a" is the variable. When $a = 2$, $9a + 17 \neq -19$, because $9(2) + 17 = 35$. Thus $a = 2$ is NOT a solution. However, when $a = -4$, the equation is true $9(-4) + 17 = -19$. Therefore, $a = -4$ must be the solution.

Identify which of the 3 possible numbers is the solution to the equation.

WARM UP
1-30
#1-7
odd

- $3x + 7 = 13$ ($x = -2$; $x = 2$; $x = 5$)
 $3(-2) + 7 = -6 + 7 = 1$
 $3(2) + 7 = 6 + 7 = 13 \checkmark$
 $3(5) + 7 = 15 + 7 = 22$
- $8 - 2b = -2$ ($b = -3$; $b = 0$; $b = 5$)
- $5 + 4g + 8 = 1$ ($g = -3$; $g = -1$; $g = 2$)
 $5 + 4(-3) + 8 = 5 - 12 + 8 = 1 \checkmark$
 $5 + 4(-1) + 8 = 5 - 4 + 8 = 9$
 $5 + 4(2) + 8 = 5 + 8 + 8 = 21$
- $6t - 5 + 5t = 105$ ($t = 4$; $t = 7$; $t = 10$)

Some equations have two variables. You may recall seeing an equation written like the following: $y = 5x + 2$. We can let x equal a number and then work the problem with this x -value to determine the associated y -value. A solution to the equation must include both the x -value and the y -value. Often the answer is written as an ordered pair. The x -value is always first. Example: (x, y) . The order matters.

Determine the y -value of each ordered pair based on the given x -value.

- $y = 6x - 15$; $(8, 33)$, $(-1, -21)$, $(5, 15)$
 $y = 6(8) - 15 = 48 - 15 = 33$
 $y = 6(-1) - 15 = -6 - 15 = -21$
 $y = 6(5) - 15 = 30 - 15 = 15$
- $y = -4x + 9$; $(-5, \quad)$, $(2, \quad)$, $(4, \quad)$
- $y = 2x - 1$; $(-4, -9)$, $(0, -1)$, $(7, 13)$
 $y = 2(-4) - 1 = -8 - 1 = -9$
 $y = 2(0) - 1 = 0 - 1 = -1$
 $y = 2(7) - 1 = 14 - 1 = 13$
- $y = -x + 9$; $(-9, \quad)$, $(1, \quad)$, $(5, \quad)$

Lesson 1

Using a constant rate of change to complete a table of values in the table. Then write a sentence explaining how you figured out the values to put in each

run a business making birdhouses. You spend \$600 to start your business, and it costs you \$5.00 to make each birdhouse.

# of birdhouses	0	1	2	3	4	5	6	7
Total cost to build	600	605	610	615	620	625	630	635

make a \$15 payment on your loan of \$500 at the end of each month.

# of months	0	1	2	3	4	5	6	7
Amount of money owed	500	485	470	455	440	425	410	395

deposit \$10 in a savings account at the end of each week.

# of weeks	0	1	2	3	4	5	6	7
Amount of money saved	0	10	20	30	40	50	60	70

are saving for a bike and can save \$10 per week. You have \$25 when you begin saving.

# of weeks	0	1	2	3	4	5	6	7
Amount of money saved	25	35	45	55	65	75	85	95

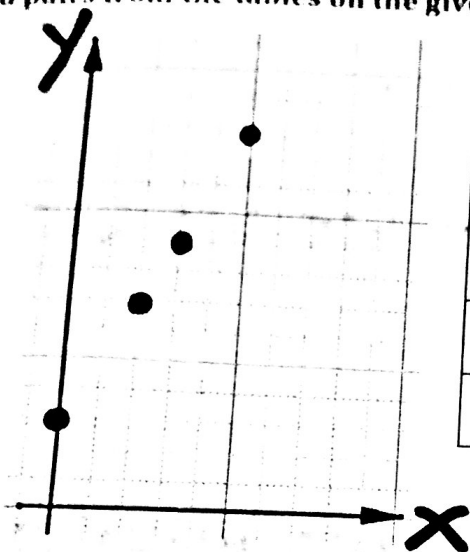
GO

Topic: Graph Linear Equations Given a Table of Values.

Graph the ordered pairs from the tables on the given graphs.

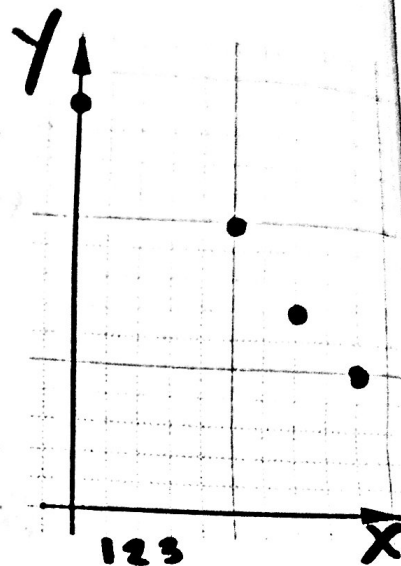
13.

x	y
0	3
2	7
3	9
5	13



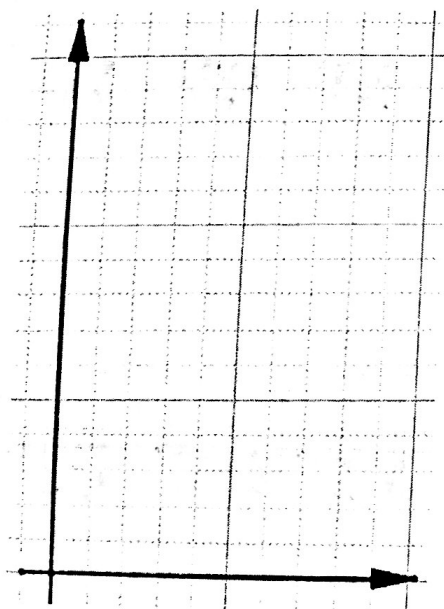
14.

x	y
0	14
4	10
7	7
9	5



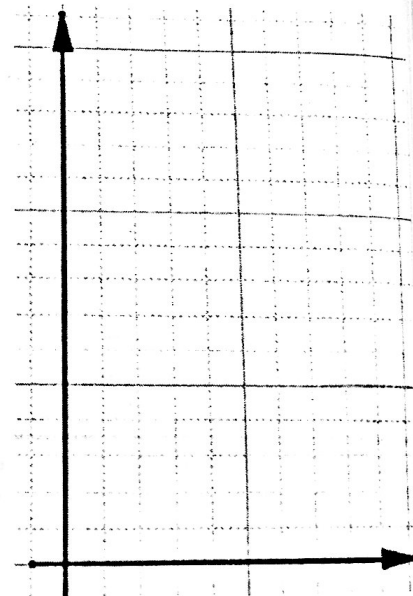
15.

x	y
2	11
4	10
6	9
8	8



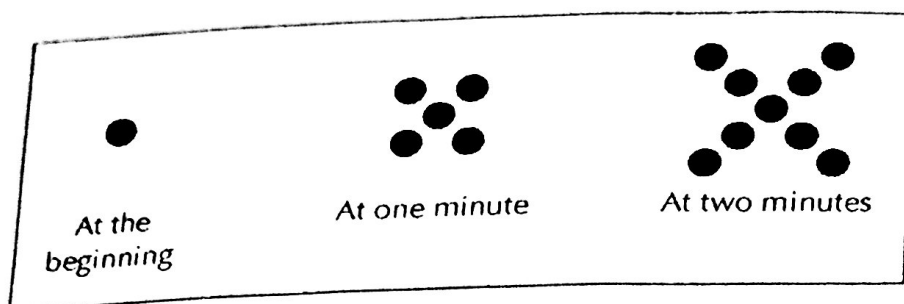
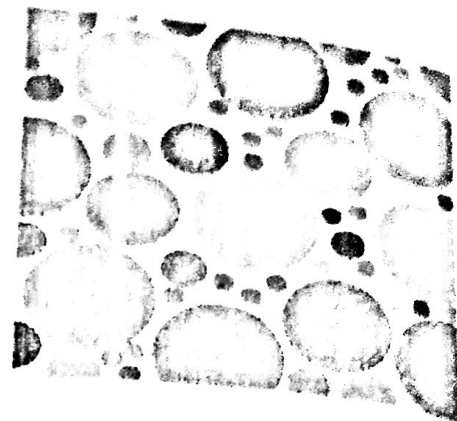
16.

x	y
1	4
2	7
3	10
4	13



Lesson 2 Growing Dots

A Develop Understanding Task



1. Describe the pattern that you see in the sequence of figures above.

add 4 dots
each minute

2. Assuming the pattern continues in the same way, how many dots are there at 3 minutes?

13 dots

3. How many dots are there at 100 minutes?

401

$$4 \cdot 100 = 400 + 1 = 401$$
$$y = 4x + 1$$

SECONDARY MATH 1 // MODULE 1
SEQUENCES - 1.2

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4. How many dots are there at t minutes? Solve the problems by your preferred method. Your solution should indicate how many dots will be in the pattern at 3 minutes, 100 minutes, and t minutes. Be sure to show how your solution relates to the picture and how you arrived at your solution.

time	0	1	2	3	...	100	t
dots	1	5	9	13		401	$4t+1$