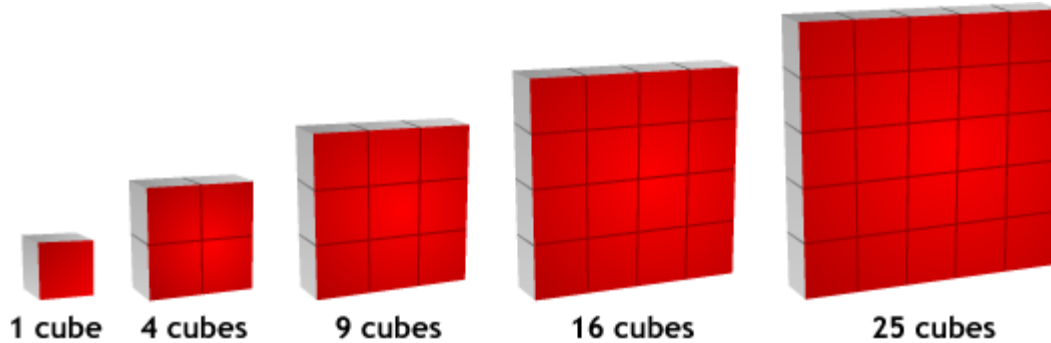


Name \_\_\_\_\_


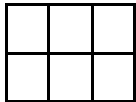
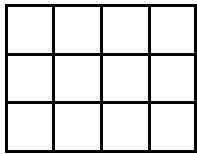
## Topic 6 Guided Assessment



- 1) Think about the square arrays you built with cubes in "Building blocks."
  - 2) Did you realize that the number of painted faces in each square array was the same as the number of cubes needed to build the array?
- Now you will focus on the number of cubes you use to build the arrays.
- 3) How will the pattern change if you add one column of cubes to each square array?
  - 4) How many cubes will you need in order to build each figure?
  - 5) Sketch, or use cubes to build, the first five figures.

**All these questions will be answered on the next page.**

6) Complete the table below based on the new pattern.

Height in cubes	Visual Description	Written description	Process	Number of painted faces
1		A 1 by 1 array with 1 more cube is 2 cubes	$1(1) + 1 = 2$	2
2		A 2 by 2 array with 2 more cubes is 6 cubes	$2(2) + 2 = 6$	6
3		A __ by __ array with __ more cubes is __ cubes		
4				
5				
n				

7) What is the algebraic representation for this table?

Hint: if you are having trouble use your calculator:

Stat—Edit—enter your data

Stat—Calc —#5 Quadreg

8) Using the function rule that you found on the previous page, how many cubes do you need for an array that has a height of 25?

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9) Using the function rule that you found on the previous page, how many cubes do you need for an array that has a height of 55?

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10) Using the function rule that you found on the previous page, how many cubes do you need for an array that has a height of 225?

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11) Using this function rule, what is the height of an array that has 110 cubes?

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12) Using this function rule, what is the height of an array that has 156 cubes?

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13) Using this function rule, what is the height of an array that has 462 cubes?

14) Use your calculator to graph a scatter plot of the problem situation on page 2 and the function rule that models the relationship between the number of cubes and the height of the array.

How do the graphs of the problem situation and the function rule compare?

Mark each statement as true or false.

\_\_\_\_\_ The graph of the function rule is a line, and the graph of the problem situation is a scatter plot with points that lie on that line.

\_\_\_\_\_ The graph of the function rule is a parabola, and the graph of the problem situation is a scatter plot with points that lie on the parabola.

\_\_\_\_\_ The graph of the function rule and the graph of the problem situation are the same

\_\_\_\_\_ The point (0,0) is on the graph of the function rule but not on the graph of the problem situation.

15) When things are arranged in rows and columns, like a rectangle of blocks, it is \_\_\_\_\_  
(fill in the blank with the appropriate words)

**A cube**

**an array**

**a face**

16) When a function is graphed, and it forms a straight line, it is a \_\_\_\_\_

17) When a function is graphed, and it forms a curved line, it is a \_\_\_\_\_

18) The shape of the graph of a quadratic function is called a \_\_\_\_\_

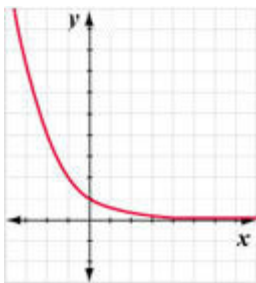
**Nonlinear**

**linear**

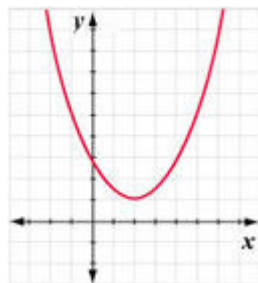
**parabola**

Label each graph

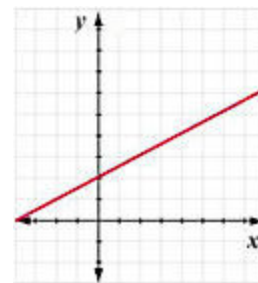
19. \_\_\_\_\_



20. \_\_\_\_\_



21. \_\_\_\_\_



22) Which of the following equations are expressions of the function  $y = 3^x$

\_\_\_\_\_  $3*3*3*3*3 = 243$

\_\_\_\_\_  $3 + 3 + 3 = 9$

\_\_\_\_\_  $3^5 = 243$

\_\_\_\_\_  $3^3 = 27$