NAME DATE PERIOD

Lesson 1: Something to Talk About

Develop Understanding

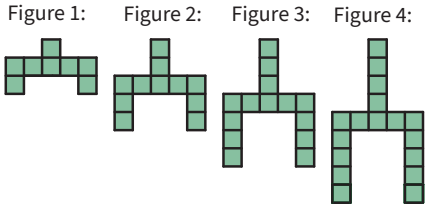
Jump Start

"***Which One Doesn't Belong***?" Five functions are given below. Determine which function is different than the others and be prepared to justify your answer.

A. $f(x) = 3(x-1)$

B. $f(n) = f(n-1) + 2,\ f(0) = 7$

C.



D.

x	$f(x)$
0	8
1	1
2	-6
3	-13
4	-20

E.

x	$f(x)$
0	5
1	6
2	9
3	14
4	21

Learning Focus

Model a growing pattern with tables, graphs, and equations.

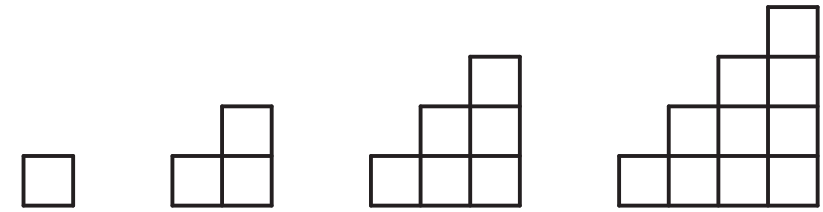
Analyze the type of growth exhibited by a pattern.

What do different representations tell us about a pattern?

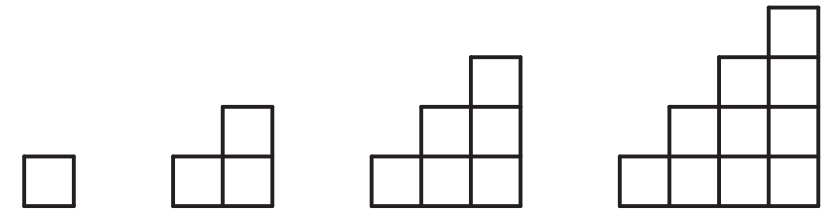
NAME DATE PERIOD

Open Up the Math
Launch, Explore, Discuss

1. Let's start with a little "***Notice and Wonder***." Given the following pattern, what do you notice? What do you wonder?



Cell phones often indicate the strength of the phone's signal with a series of bars. The image shows how this might look for various levels of service.

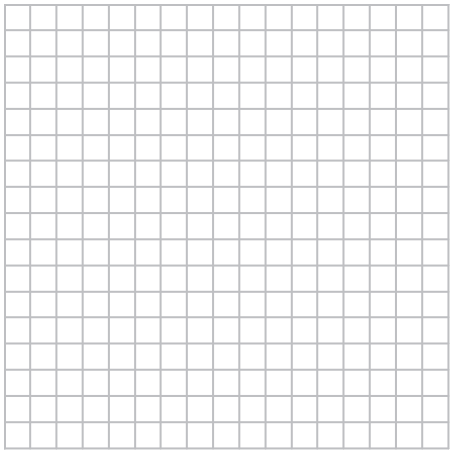


2. Assuming the pattern continues, draw the next figure in the sequence.

3. How many blocks will be in Figure 10?

4. Examine the sequence of figures and find a rule or formula for the number of tiles in any figure number.

NAME DATE PERIOD



Ready for More?

Using the same sequence of figures, model the relationship between the perimeter of a figure and the figure number with a table, an explicit equation, and a recursive equation.

Table:

Explicit Equation:

Recursive Equation:

Takeaways

Quadratic Function

Table:

Graph:

Recursive equation:

Next:

NAME DATE PERIOD

Explicit Equation:

Vocabulary

- **quadratic equations**
- **quadratic function**

Bold terms are new in this lesson.

Lesson Summary

In this lesson we investigated a new kind of function called a quadratic function. We modeled a sequence of figures with tables, graphs, and explicit and recursive equations to identify features of quadratic functions and how they appear in each representation.

Retrieval

Rewrite the following expressions using the distributive property.

1. $5(3x - 2)$
2. $2x(6x + 5)$
3. $\frac{2x}{3}(9x + 6)$

Identify the rate of change in each representation of a linear function.

NAME DATE PERIOD

4. $f(n) = f(n-1) - 8,\ f(1) = 13$

5.