Name _____

Lesson 13

COMMON CORE STANDARD CC.4.OA.5

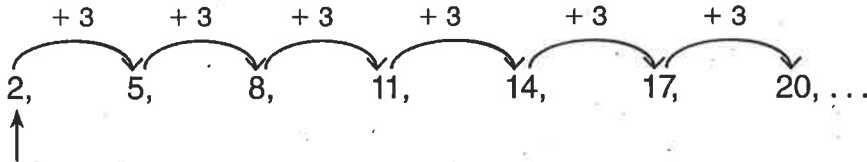Lesson Objective: Generate a number pattern and describe features of the pattern.

Algebra • Number Patterns

A pattern is an ordered set of numbers or objects, called terms. The numbers below form a pattern. The first term in the pattern is 2.
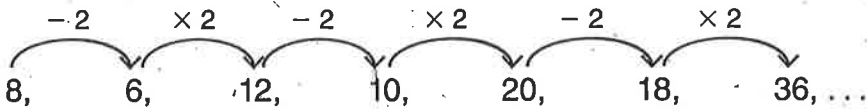
+3	+3	+3	+3	+3	+3

2,   5,   8,   11,   14,   17,   20, . . .

↑
First term

A rule is used to describe a pattern. The rule for this pattern is ***add 3.***

You can describe other patterns in the numbers. Notice that the terms in the pattern shown alternate between even and odd numbers.

For some patterns, the rule may have two operations.

−2	×2	−2	×2	−2	×2

8,   6,   12,   10,   20,   18,   36, . . .

The rule for this pattern is ***subtract 2, multiply by 2.*** The first term is 8.
Notice that all of the terms in this pattern are even numbers.

Use the rule to write the numbers in the pattern.

1. Rule: Add 7.   First term: 12   **2.** Rule: Multiply by 3, subtract 1.   First term: 2

12, _____, _____, _____, _____, . . .   2, _____, _____, _____, _____, . . .

Use the rule to write the numbers in the pattern.
Describe another pattern in the numbers.

3. Rule: Subtract 5.   First term: 50

50, _____, _____, _____, _____, . . .

_____

_____

4. Rule: Multiply by 2, add 1.   First term: 4

4, _____, _____, _____, _____, . . .

_____

_____

Operations and Algebraic Thinking

Name _____

Number Patterns

Use the rule to write the first twelve numbers in the pattern.
Describe another pattern in the numbers.

1. Rule: Add 8.   First term: 5

   Think: Add 8.

   5   13   21   29   37

   5, 13, 21, 29, 37, 45, 53, 61, 69, 77, 85, 93

   All the terms are odd numbers.

2. Rule: Subtract 7.   First term: 95

   _____

   _____

3. Rule: Add 15, subtract 10.   First term: 4

   _____

   _____

4. Rule: Add 1, multiply by 2.   First term: 2

   _____

   _____

Problem Solving REAL WORLD

5. Barb is making a bead necklace. She strings 1 white bead, then 3 blue beads, then 1 white bead, and so on. Write the numbers for the first eight beads that are white. What is a rule for the pattern?

   _____

   _____

6. An artist is arranging tiles in rows to decorate a wall. Each new row has 2 fewer tiles than the row below it. If the first row has 23 tiles, how many tiles will be in the seventh row?

   _____

   _____