ALBERT

Name _____ Date _____

Number Patterns Worksheet

Grade 4 · Common Core 4.OA.C.5

> Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.

Practice

Builds the skill step by step.

1. Start at 3. The rule is "add 4." Write the first five terms.

2. Start at 2. The rule is "multiply by 2." What is the 5th term?

3. What is the rule for the pattern 5, 10, 15, 20, 25?

   A. Multiply by 5

   B. Multiply by 2

   C. Add 10

   D. Add 5

4. Start at 50. The rule is "subtract 6." What is the 4th term?

5. Start at 1. The rule is "add 2." Are the terms odd or even?

6. Start at 1. The rule is "add 3." What is the 6th term?

7. Which pattern follows the rule "add 9" and starts at 9?

   A. 9, 19, 29, 39

   B. 9, 18, 27, 36

   C. 9, 81, 729, 6,561

   D. 0, 9, 18, 27

8. A shape pattern repeats: circle, square, triangle, circle, square, triangle, and so on. What is the 10th shape?

9. Start at 4. The rule is "add 5." What is the first term greater than 30?

10. The rule is "add 7." Fill in the missing terms: 7, 14, ___, 28, ___. Give them in order.

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On Level

Grade-level practice.

1. Start at 6. The rule is "add 6." Write the first six terms.

2. Start at 1. The rule is "add 3." Which statement about the terms is true?

   A. The terms alternate odd, even, odd, even.

   B. All the terms are odd.

   C. All the terms are even.

   D. Every term is a multiple of 3.

3. Start at 3. The rule is "multiply by 3." What is the 4th term?

4. Start at 100. The rule is "subtract 8." What is the 7th term?

5. Start at 5. The rule is "add 10." Which statement about the terms is true?

   A. Every term is even.

   B. Every term ends in 0.

   C. Every term ends in 5.

   D. The terms alternate odd and even.

6. Start at 4. The rule is "add 4." Is the 20th term odd or even?

7. Figure 1 has 3 squares. Each new figure has 2 more squares than the figure before it. How many squares are in Figure 6?

8. Start at 7. The rule is "add 5." List all the terms that are less than 30.

9. Mia starts at 2 and uses the rule "add 4." She says every term will be even. Why is she right?

   A. She started with a small number.

   B. Adding 4 always gives an odd number.

   C. 4 is greater than 2.

   D. An even number plus an even number is always even.

10. Start at 1. The rule is "multiply by 2, then add 1." What is the 4th term?

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Challenge

Multi-step and word problems that stretch it.

1. Start at 2. The rule is "add 3." What is the 10th term?

2. Start at 1. The rule is "add 3." Why do the terms alternate between odd and even?

   A. 3 is a prime number.

   B. The first term, 1, is odd.

   C. Odd + odd gives an even number, and even + odd gives an odd number, and 3 is odd.

   D. Adding 3 always gives an odd number.

3. Start at 5. The rule is "add 5." How many of the first 12 terms end in 0?

4. Start at 2. The rule is "multiply by 2." Which statement is true for every term after the first?

   A. Every term ends in 2.

   B. The ones digits repeat 4, 8, 6, 2.

   C. Every term is a multiple of 3.

   D. The terms alternate odd and even.

5. Figure 1 uses 4 toothpicks to make one square. Each new figure adds one square to the row, which uses 3 more toothpicks. How many toothpicks are in Figure 10?

6. A pattern starts at 81. The rule is "subtract 9." The first term is 81. Which term is 0? Give the term number.

7. Start at 3. The rule is "add 4." Will 99 be a term in the pattern?

   A. Yes, because $99 - 3 = 96$, and 96 is a multiple of 4.

   B. No, because 99 is odd.

   C. No, because 99 is not a multiple of 4.

   D. Yes, because every odd number is in the pattern.

8. Start at 10. The rule is "multiply by 2, then subtract 5." What is the 4th term?

9. A string of beads repeats: red, blue, blue, green. What color is the 30th bead?

10. Mr. Ortiz saves $6 in week 1. Each week he saves $4 more than the week before. How much does he save in week 8?