Algebra 2 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sequences Review Period: \_\_\_\_\_

A **sequence** is an ordered list of numbers. For example, 

Each number in the sequence is called a **term**. The first term, , (pronounced “ sub one”), is . The second term, , is , and so on.

The  term, , is called the **general term** of the sequence. A **recursive formula**, the formula that defines a sequence, must specify one (or more) starting terms and a **recursive rule** that defines the  term in relation to a previous term (or terms).

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| Because the starting value is , the recursive rule  is first used to find . This is clarified by saying that  must be greater than or equal to  to use the recursive rule. |

You generate the sequence  with this recursive formula:



This means that the *first term is * and *each subsequent term is equal to the previous term plus *. Notice that each term, , is defined in relation to the previous term, . For example, the  term relies on the  term, or .

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| **Arithmetic Sequence**  An **arithmetic sequence** is a sequence in which each term is equal to the previous term plus a constant. This constant is called the **common difference**. If  is the common different, the recursive rule for the sequence has the form |  | **Geometric Sequence**  A **geometric sequence** is a sequence in which each term is equal to the previous term multiplied by a constant. This constant is called the **common ratio**. If  is the common ration, the recursive rule for the sequence has the form |

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**Homework**

1. Match each description of a sequence to its recursive formula.

a. The first term is . Keep adding . b. Start with . Keep subtracting .

c. Start with . Keep adding . d. The first term is . Keep multiplying by 

i.  ii. 

iii.  iv. 

2. For each sequence in #1, write the first  terms of the sequence and identify if it is arithmetic or geometric. State the common difference or the common ratio for each sequence.

3. Write a recursive formula and use it to find the missing table values. Copy and complete the table.

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4. Write a recursive formula to generate an arithmetic sequence with a first term  and a common difference of . Find the  term.

5. Write a recursive formula to generate each sequence. Then find the indicated term.

a.  Find the  term. b.  Find the  term.

c.  Find the  term d.  Find the  term.

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