**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Recursive and Iterative Functions**

**Determine if each sequence is an arithmetic or geometric sequence. If it is, identify the common differences (d) or the common ratio (r).**

1. 6, 12, 18, 24, … type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d or r = \_\_\_\_\_\_\_\_\_

Recursive (now-next) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ recursive (Bn) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 6, 11, 16, … type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d or r = \_\_\_\_\_\_\_\_\_

Recursive (now-next) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ recursive (Bn) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 2, 14, 98, 686, … type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d or r = \_\_\_\_\_\_\_\_\_

Recursive (now-next) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ recursive (Bn) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 160, 80, 40, 20, … type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d or r = \_\_\_\_\_\_\_\_\_

Recursive (now-next) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ recursive (Bn) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. -40, -25, -10, 5, … type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d or r = \_\_\_\_\_\_\_\_\_

Recursive (now-next) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_recursive (Bn) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 7, -21, 63, -189,… type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d or r = \_\_\_\_\_\_\_\_\_

Recursive (now-next) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_recursive (Bn) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**For the following sequences, find the first term (a1) and the common difference (d) and state the recursive formula and the general term. Don’t forget to simplify.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **First term:**  **a1** | **Difference: (d)** | **Recursive Formula****Now-next****Bn** | **Explicit Formula** |
| 1. -10, -4, 2, 8, 14, …
 |  |  |  |  |
| 1. 10, 8, 6, 4, …
 |  |  |  |  |
| 1. 36, 31, 26, 21,…
 |  |  |  |  |

1. Use for formula from question # 9 to find the value of a7 and a20.
2. The first term of an arithmetic sequence is a1 = 14, and the common difference is 6. Write an explicit formula in simplest form. Find the 12th term.
3. The first term of an arithmetic sequence is a1 = 52, and the common difference is -5. Write an explicit formula in simplest form then find a20.