Name:

PreTest: HSF-BF.A.2 Sequences and functions

1. Which defines the sequence $f(1) = 5, f(2) = 9, f(3) = 13, f(4) = 17, f(5) = 21$?
   A. $f(1) = 5, f(n) = 4 + f(n-1)$ for $n \geq 2$
   B. $f(1) = 5, f(n) = 9 + f(n-1)$ for $n \geq 2$
   C. $f(1) = 5, f(n) = 4 + f(n-1)$ for $n \geq 2$
   D. $f(1) = 9, f(n) = 5 + f(n-1)$ for $n \geq 2$

2. A sequence is defined by $f(1) = 2, f(n) = 3 \cdot f(n-1)$ for $n \geq 2$. Which of the following defines the nth term?
   A. $f(n) = 2 + 3n$ for $n \geq 1$
   B. $f(n) = 2 + 3(n-1)$ for $n \geq 1$
   C. $f(n) = 2 \cdot 3^n$ for $n \geq 1$
   D. $f(n) = 2 \cdot 3^{n-1}$ for $n \geq 1$

3. Here are some values of sequence R. Write a recursive definition for the sequence.

n	$R(n)$
1	8
2	6
3	4

4. In the table below are some values of sequence S.

A. Is the sequence arithmetic, geometric, or neither? Explain how you know.

n	$S(n)$
1	3
2	9
3	27

B. Write a recursive definition for the sequence.

C. For term $S(n)$, what are some values of n that make sense to use? What are some values of that don't make sense to use? Explain your reasoning.

5. Here are some values of sequence T. (notice that the values for n are *not* consecuitive) Write a recursive definition for the sequence.

n	$T(n)$
1	1
3	7
6	16

6. The first two numbers in a sequence g are $g(1) = 3$ and $g(2) = 9$.
   A. If g is an arithmetic sequence, What is the value of the third term $g(3)$?

B. Write a definition for the nth term of g. Explain or show your reasoning.

B. If g is a geometric sequence, write a definition for the nth term of g. Explain or show your reasoning.