

Name: \_\_\_\_\_

**Test: Arithmetic and Geometric Sequences**

1. Consider the following sequence: 5, -10, \_\_, -40, ...

Mr. D says it's an arithmetic sequence. Dr. Brennan says it's a geometric sequence. Dr. Zaccara listens to both, then suddenly declares that it could be either! Explain Dr. Z's thinking.

It could be an arithmetic sequence because...

It could be a geometric sequence because...

2. Ms. Maiello has an arithmetic sequence that has 3 as the **first** term and 18 as the **fourth** term. Does 499 appear in this sequence? Answer **YES** or **NO** and explain all reasoning clearly!

3. Ms. Shekian is thinking about this geometric sequence: 1, \_\_, 9, \_\_, 81, ... She says there are two possibilities for the sequence because "the common ratio could be positive or negative." Find a formula for the  $n^{\text{th}}$  term in **both** possible cases:

Common ratio positive:

Common ratio negative: