

ILCHS

Algebra 2

Date:

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

**Arithmetic and Geometric sequences**

1. Determine if the sequence is arithmetic. If it is, find the common difference.

a)  $-9, -109, -209, -309, \dots$

b)  $28, 26, 24, 22, \dots$

c)  $-8, -4, 0, 4, \dots$

2. Find the common difference, the three terms in the sequence after the last one given and the formula for the general term. ( $a_n$ )

a)  $9, 19, 29, 39, \dots$

b)  $17, 13, 9, 5, \dots$

3. Determine if the sequence is geometric. If it is, find the common ratio.

a)  $-2, -10, -50, -250, \dots$

b)  $1, 6, 36, 216, \dots$

c)  $3, 1, \frac{1}{3}, \frac{1}{9}, \dots$

4. Find the common ratio, the three terms in the sequence after the last one given and the formula for the general term. ( $a_n$ )

a)  $2, 8, 32, 128, \dots$

b)  $3, -6, 12, -24, \dots$

5. Find the sum of each series.

a)  $\sum_{n=1}^8 3n$

b)  $\sum_{n=1}^6 4^n$

6. Find the first four terms in each sequence.

a)  $a_n = \frac{2n+1}{n^3}$

b)  $a_n = 3^{n-1}$

7. Allen is on football team this year, but he has poor time management skills. His mother told him that he is off the team if he fails anything in school. On his first math quiz he earned a 90, then he earned an 86 and an 82 on his next two quizzes. If his grades continue at this rate what will his quiz grade be after the 8<sup>th</sup> quiz? Will he still be on the same team?

a) Write out the sequence. Is the sequence arithmetic or geometric? Explain your answer.

b) Write an explicit formula for the sequence.

c) What can he expect to get on his 8<sup>th</sup> quiz?

