

HW L4-2

NAME _____

1. Some terms in a sequence are given in the table below. Is this sequence arithmetic, geometric, or neither? How do you know?

Term Number (n)	1	2	3	4	5	6	7
n^{th} term	2	-4	6	-8	10	-12	14

2. For the geometric sequence where $a_2 = 1$ and $a_5 = 64$, find the following.

a. The common ratio, r .

b. a_0

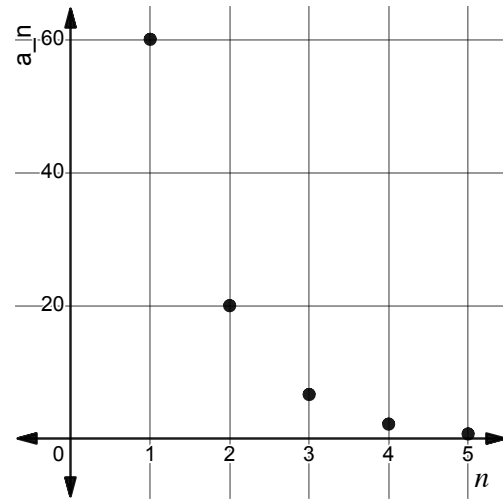
3. The first two terms of a sequence are 8 and 12.

a. Find the third and fourth term if the sequence is arithmetic.

b. Find the third and fourth term if the sequence is geometric.

4. The first 5 terms of a geometric sequence are shown in the graph. Which of the following formulas can be used to find the n^{th} term of this sequence?

- A) $a_n = 60 \left(\frac{1}{3} \right)^n$
- B) $a_n = 120 \left(\frac{1}{3} \right)^n$
- C) $a_n = 20 \left(\frac{1}{3} \right)^{n-2}$
- D) $a_n = 60 \left(\frac{2}{3} \right)^{n-1}$



5. Let $a_n = 30(2.5)^{n-3}$.

a. Find a_3 .

b. An equivalent equation for a_n can be written in the form

$a_n = b \cdot k^n$ for some constants b and k . Find the value of b and k .

6. A geometric sequence, b_n , has a common ratio of $\frac{3}{5}$. Find $\frac{b_{10}}{b_8}$ or explain why it is not possible.

7. A rope is woven with seven different colors of thread. The rope is red on one end, then orange, then yellow, then green, then blue, then indigo, and violet at the other end. The lengths of each colored section form a geometric sequence. The red section is 3 centimeters long and the violet section is 192 centimeters long.

a. What is the length of the orange section?

b. What is the length of the blue section?

c. How long is the rope?

8. The first four terms of a geometric sequence are given by j^8 , j^7k , j^6k^2 , and j^5k^3 . Find the common ratio of this sequence.

9. If $x - 12$, $x + 3$, and $4x + 12$ form a geometric sequence, find x .

10. Consider the sequence given by $81, 27, 9, 3, 1, \frac{1}{3}, \dots$

a. Describe the pattern in words.

b. Write an explicit rule for the sequence.