A Level Maths

Topic: Geometric Sequences and Sums

Instructions

Answer all questions. Show all necessary steps. Use the appropriate formulas for geometric sequences and series.

Practice Problems

1. Find the 6th term of the geometric sequence: $3, 6, 12, \ldots$
2. A geometric sequence has $a = 5$ and common ratio $r = 2$. Find the 8th term.
3. The 1st term is 81 and the common ratio is $\frac{1}{3}$. What is the 5th term?
4. If the 3rd term of a geometric sequence is 16 and the 6th term is 128, find the common ratio.
5. Find the sum of the first 5 terms of the sequence: $2, 4, 8, \ldots$
6. A geometric series has $a = 3$, $r = 2$, and $n = 6$. Find the sum.
7. The sum of the first 4 terms of a geometric sequence is 30 and the first term is 2. Find the common ratio.
8. If a geometric series has a first term of 100 and a common ratio of $\frac{1}{2}$, find the sum to infinity.

Multiple-Choice Questions

1. What is the 7th term of the geometric sequence: $2, 6, 18, \ldots$?

   A. 486

   B. 648

   C. 729

   D. 874

2. A geometric sequence has $a = 4$, $r = 3$, what is the 5th term?

   A. 108

   B. 324

   C. 81

   D. 243

3. What is the sum of the first 4 terms of the sequence: $1, \frac{1}{2}, \frac{1}{4}, \ldots$?

   A. $\frac{15}{16}$

   B. $\frac{7}{8}$

   C. $\frac{13}{16}$

   D. $\frac{31}{32}$

4. The infinite sum of the geometric series $5 + \frac{5}{2} + \frac{5}{4} + \cdots$ is:

   A. 10

   B. 15

   C. 20

   D. 25

5. A geometric sequence has $a = 16$, $r = \frac{1}{2}$. What is the sum to infinity?

   A. 24

   B. 28

   C. 30

   D. 32