

# Arithmetic and Geometric Progression

## Question Paper 7

<b>Level</b>	International A Level
<b>Subject</b>	Maths
<b>Exam Board</b>	CIE
<b>Topic</b>	Series
<b>Sub Topic</b>	Arithmetic and Geometric Progression
<b>Booklet</b>	Question Paper 7

**Time Allowed:** 39 minutes

**Score:** /32

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

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- 1** A geometric progression has 6 terms. The first term is 192 and the common ratio is 1.5. An arithmetic progression has 21 terms and common difference 1.5. Given that the sum of all the terms in the geometric progression is equal to the sum of all the terms in the arithmetic progression, find the first term and the last term of the arithmetic progression. [6]
- 2** Find
- (i) the sum of the first ten terms of the geometric progression 81, 54, 36, ... , [3]
  - (ii) the sum of all the terms in the arithmetic progression 180, 175, 170, ... , 25. [3]
- 3** A geometric progression has first term 64 and sum to infinity 256. Find
- (i) the common ratio, [2]
  - (ii) the sum of the first ten terms. [2]
- 4**
- (a) A debt of \$3726 is repaid by weekly payments which are in arithmetic progression. The first payment is \$60 and the debt is fully repaid after 48 weeks. Find the third payment. [3]
  - (b) Find the sum to infinity of the geometric progression whose first term is 6 and whose second term is 4. [3]
- 5** In an arithmetic progression, the 1st term is  $-10$ , the 15th term is 11 and the last term is 41. Find the sum of all the terms in the progression. [5]
- 6** A geometric progression, for which the common ratio is positive, has a second term of 18 and a fourth term of 8. Find
- (i) the first term and the common ratio of the progression, [3]
  - (ii) the sum to infinity of the progression. [2]