

Mathematics Skill builder worksheets

Course : Analysis and Approaches

Level : SL / HL

Topic : **Sequence and Series (WS-1)**

Algebra

Instruction:

- Unless otherwise stated in the question, all numerical answers should be given exactly or correct to three significant figures.
- Do **NOT** use any calculator to solve these problems
- Please refer to the link provided at the end of the worksheet to view the answers and complete working for these questions.

Answer the following questions

1. [Maximum marks: 6]

The general term of an arithmetic sequence is $u_n = 11 - 4n$

- (a) Find the first four terms of the sequence. [2 marks]
- (b) Find the 20th term of the sequence [2 marks]
- (c) Find the n th term of the sequence is -97 find ' n ' [2 marks]

2. [Maximum marks: 6]

The first three terms of an arithmetic sequence are $u_1, 3u_1 - 9, 2u_1 + 3$

- (a) Show that $u_1 = 7$ [3 marks]
- (b) Find the common difference d [2 marks]
- (c) Which term of the sequence is 102 [2 marks]
- (d) Find the sum of the first 20 terms of the sequence [3 marks]

3. [Maximum marks: 6]

Consider the sequence 2, 6, 10, 14,

- (a) Show that it's an arithmetic sequence. [2 marks]
- (b) Find the next three terms of the sequence [2 marks]
- (c) Find the sum of up to 10 terms of the sequence [2 marks]

4. [Maximum marks: 6]

A geometric sequence has the first term 5 and a common ratio of 2.

- (a) Find the 10th term of the sequence. [2 marks]
- (b) The n th term of the sequence is 640, find n . [2 marks]
- (c) Find the sum of the first 7 terms of the sequence [2 marks]

5. [Maximum marks: 6]

Consider the arithmetic sequence is 20,17,14,11, ...

- (a) Find the common difference ' d ' of the sequence. [2 marks]
- (b) Given that $u_n = -37$ find ' n ' [2 marks]
- (c) Find the sum of up to 20 terms of the sequence [2 marks]

Mathelaureate

Please refer to www.mathelaureate.com for solutions to this worksheet.