

4.2 Arithmetic Sequences & Series

Question Paper

Course	Edexcel IAL Maths: Pure 2
Section	4. Sequences & Series
Topic	4.2 Arithmetic Sequences & Series
Difficulty	Easy

Time allowed: 30

Score: /28

Percentage: /100

Question 1

Write down the next three terms in these arithmetic sequences

(i) 30, 18, 6, ...

(ii) $\frac{1}{4}, \frac{5}{12}, \frac{7}{12}, \frac{3}{4}, \dots$

[2 marks]**Question 2**

Find the sum of the first four terms in the sequence defined by $u_n = 2n + 3$.
Justify why this sequence is an arithmetic sequence.

[2]

[2 marks]**Question 3**

Write down a formula for the n^{th} term of each of the following arithmetic sequences

(i) 16, 20, 24, ...

(ii) First term: $a = 3$

Common difference: $d = -3$

(iii) $a = 2, d = 6$

[3 marks]

Question 4

Find the 10th and 20th terms in each of the following arithmetic sequences

(i) $u_n = 4 + 5n$

(ii) $u_n = \frac{1}{2} - \frac{1}{4}n$

(iii) $u_n = 50 - 5n$

[3 marks]

Question 5

- (a) The 4th and 8th terms of an arithmetic sequence are 20 and 64 respectively.
Find the first term and the common difference.

[3 marks]

Question 5

(b) The 12th and 16th terms of an arithmetic sequence differ by 20.
Find the possible values of the common difference.

[2 marks]**Question 6**

Find the sum of the first 20 terms of the arithmetic series that has first term 3 and common difference 4.

[2 marks]**Question 7**

The first term of an arithmetic sequence is 3.
The 10th term of the sequence is 30.
The sum of the first n terms is 630.

(a) Find the common difference.

[2 marks]**Question 7**

(b) Show that $n^2 + n - 420 = 0$.

[2 marks]

Question 7

(c) Hence find the value of n .

[2 marks]

Question 8

An arithmetic series is given by

$$k + 2k + 3k + 4k + \dots$$

where k is a constant.

(a) Write down a formula for the n^{th} term of the series, in terms of k .

[1 mark]

Question 8

(b) Show that the sum of the first n terms is $\frac{kn}{2}(n + 1)$.

[2 marks]

Question 8

- (c) The sum of the first 12 terms is 39.
Find the value of k .

[2 marks]