

**Arithmetic Sequences and Series Past Paper Questions Edexcel Maths**  
**IGCSE Higher- Calculator**

1.

Here are the first five terms of an arithmetic sequence.

7    11    15    19    23

Write down an expression, in terms of  $n$ , for the  $n$ th term of this sequence.

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(Total for Question is 2 marks)

2.

$(2x + 23)$ ,  $(8x + 2)$  and  $(20x - 52)$  are three consecutive terms of an arithmetic sequence.

Prove that the common difference of the sequence is 12

**3.**

**3** Here are the first five terms of a number sequence  $S$ .

10      16      22      28      34

(a) Find an expression, in terms of  $n$ , for the  $n$ th term of this sequence.

(2)

The  $n$ th term of a sequence  $T$  is given by  $n^2 - 3$

There are numbers that are terms in both the sequence  $S$  and the sequence  $T$ .

(b) Find one of these numbers.

(2)

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**(Total for Question 3 is 4 marks)**

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4.

- The 10th term of an arithmetic series,  $S$ , is 66  
The sum of the first 20 terms of  $S$  is 1290

Find the 5th term of  $S$ .  
Show your working clearly.

5.

The first four terms of an arithmetic sequence are

2      9      16      23

Write down an expression, in terms of  $n$ , for the  $n$ th term.

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(Total for Question 5 is 2 marks)

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**6.**

The sum of the first 48 terms of an arithmetic series is 4 times the sum of the first 36 terms of the same series.

Find the sum of the first 30 terms of this series.

7.

An arithmetic sequence has first term  $a$  and common difference  $d$ . The sum of the first 10 terms of the sequence is 162.

(a) Show that  $10a + 45d = 162$  **(2)**

Given also that the sixth term of the sequence is 17,

(b) write down a second equation in  $a$  and  $d$ , **(1)**

(c) find the value of  $a$  and the value of  $d$ . **(4)**

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8.

The first term of an arithmetic series is  $a$  and the common difference is  $d$ .

The 18th term of the series is 25 and the 21st term of the series is  $32\frac{1}{2}$ .

(a) Use this information to write down two equations for  $a$  and  $d$ . (2)

(b) Show that  $a = -17.5$  and find the value of  $d$ . (2)

The sum of the first  $n$  terms of the series is 2750.

(c) Show that  $n$  is given by

$$n^2 - 15n = 55 \times 40. \quad (4)$$

(d) Hence find the value of  $n$ . (3)

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9.

The first term of an arithmetic sequence is 30 and the common difference is  $-1.5$

(a) Find the value of the 25th term. (2)

The  $r$ th term of the sequence is 0.

(b) Find the value of  $r$ . (2)

The sum of the first  $n$  terms of the sequence is  $S_n$ .

(c) Find the largest positive value of  $S_n$ . (3)