JustMaths

Sequences (H & F)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.

Name:	ANSWERS BY
Total Marks:	KERRY DUNTON

1. Find the nth term of the sequence 6, 13, 20, 27, ...

+7 +7

7n - 1

[2]

2. The nth term of a sequence is 2n + 1

The nth term of a different sequence is 3n - 1

Work out the **three** numbers that are

in both sequences

and

between 20 and 40

23, 29, 35

2n+1 : 21, (23), 25, 27, (29), 31, 33, (35), 37, 39

3n-1 : 20, (23), 26, (29), 32, (35), 38

[3]

3. Which sequence is a geometric progression?

Circle your answer.

1	2	3	4
1	2	4	8

1	2	4	7
1	2	3	5

[1]

4. Here are the first four terms of an arithmetic sequence.

6 10 14 18

(a) Write an expression, in terms of n, for the nth term of this sequence.

4n + 2 ..... [2]

The nth term of a different arithmetic sequence is 3n + 5

(b) Is 108 a term of this sequence?

Show how you get your answer.

$3n + 5 = 108$

$(-5)\quad 3n = 103$

$(\div 3)\quad n = 34\frac{1}{3}$

as n is not an integer, 108 is not in the sequence

[2]

5. Here are the first six terms of a Fibonacci sequence.

1 1 2 3 5 8 13 21

The rule to continue a Fibonacci sequence is,

the next term in the sequence is the sum of the two previous terms.

(a) Find the 9th term of this sequence.

$13 + 21$

34 ..... [1]

The first three terms of a different Fibonacci sequence are

a b a + b $a+2b$ $2a+3b$

(b) Show that the 6th term of this sequence is 3a + 5b

$a + 2b + 2a + 3b = 3a + 5b$

[2]

Given that the 3rd term is 7 and the 6th term is 29,

(c) find the value of a and the value of b.

$a + b = 7$ (1)

$3a + 5b = 29$ (2)

(1) × 3 $3a + 3b = 21$

$2b = 8$

$b = 4$

$a + b = 7$

$a + 4 = 7$

a = 3

b = 4

[3]

6. Work out the next term of this quadratic sequence.

4 12 24 40 60

8 12 16 20

[2]