



EXAM PAPERS PRACTICE

GCSE Edexcel Math
1MA1
Fibonacci &
Geometric

Question Paper

*"We will help you to
achieve A Star "*

Question 1

S is a geometric sequence.

- (a) Given that $(\sqrt{x} - 1)$, 1 and $(\sqrt{x} + 1)$ are the first three terms of S, find the value of x .
You must show all your working.

[3 marks]

Question 2

Louis and Robert are investigating the growth in the population of a type of bacteria.
They have two flasks A and B.

At the start of day 1, there are 1000 bacteria in flask A.

The population of bacteria grows exponentially at the rate of 50% per day.

- (a) Show that the population of bacteria in flask A at the start of each day forms a geometric progression.

[2 marks]

Question 3

At the start of day 1 there are 1000 bacteria in flask B.

The population of bacteria in flask B grows exponentially at the rate of 30% per day.

- (c) Sketch a graph to compare the size of the population of bacteria in flask A and in flask B.

[1 mark]

Question 4

The first three terms of a different Fibonacci sequence are

$$a \quad b \quad a + b$$

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

[2 marks]

Question 5

Find the n th term of each of these sequences.

(a) 16, 19, 22, 25, 28, ...

[2 marks]

Question 6

The table shows the first five terms of sequences A, B and C.

Sequence	1st term	2nd term	3rd term	4th term	5th term	6th term
A	3	4	5	6	7	
B	0	1	4	9	16	
C	-3	-3	-1	3	9	

(a) Complete the table for the 6th term of each sequence.

[2 marks]

Question 7

(c) (i) Find the n th term of sequence B.

(ii) Find the value of n when the n th term of sequence B is 8281.

[4 marks]

Question 8

(e) The n th term of another sequence D is $\left(-\frac{1}{2}\right)^{n-1}$.

Complete the table for the first four terms of sequence D.

Sequence	1st term	2nd term	3rd term	4th term
D				

[3 marks]

Question 9

(b) Write down the first two terms of this sequence.

..... 3 11 14

[2 marks]

Question 10

The first five terms of a sequence are 4, 9, 16, 25, 36, ...

Find

(a) the 10th term,

[1 mark]

Question 11

(b) Show that the 5th term of S is $7 + 5\sqrt{2}$

[2 marks]

Question 12

The population of bacteria in flask A at the start of the 10th day is k times the population of bacteria in flask A at the start of the 6th day.

(b) Find the value of k .

[2 marks]

Question 13

Here are the first six terms of a Fibonacci sequence.

1 1 2 3 5 8

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.

[1 mark]

Question 14

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

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

[3 marks]

Question 15

(b) 1, 3, 9, 27, 81, ...

[2 marks]