



EXAM PAPERS PRACTICE

GCSE OCR Math J560

Fibonacci & Geometric

Question Paper

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



Question 1

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

[2 marks]

Question 2

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 3

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 4

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 5

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

[2 marks]

Question 6

(b) Write down the n th term of sequence A.

[1 mark]

Question 7

(d) (i) Find the n th term of sequence C in its simplest form.

(ii) Find the 8th term of sequence C.

[3 marks]

Question 8

In all the following sequences, after the first two terms, the rule is to add the previous two terms to find the next term.

(a) Write down the next two terms in this sequence.

1 1 2 3 5 8 13

[1 mark]



Question 9

(c) (i) Find the value of d and the value of e .

$$2 \quad d \quad e \quad 10$$

(ii) Find the value of x , the value of y and the value of z .

$$-33 \quad x \quad y \quad z \quad 18$$

[8 marks]

Question 10

(b) the n th term.

[1 mark]

Question 11

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 12

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 13

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 14

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 15

Find the n th term of each of these sequences.

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

[2 marks]