

Geometric and Fibonacci-type sequences

Grade 6 | Higher | 13 questions, 41 marks

GCSE Maths topic practice



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1 Here are the first four terms of a sequence.

3 6 12 24

- Write down the next term of the sequence.
- Write down the term-to-term rule of the sequence.

(2 marks)

Answer _____

2 Here are the first five terms of a Fibonacci sequence.

2 3 5 8 13

- Write down the next term of the sequence.
- Describe the rule for finding the next term of the sequence.

(2 marks)

Answer _____

3 Here are the first four terms of a geometric sequence.

3 12 48 192

- Write down the common ratio.
- Work out the next term.

(2 marks)

Answer _____

4 Here are the first four terms of a sequence.

96 48 24 12

- a. Write down the next term of the sequence.
- b. Work out the 8th term of the sequence.

(3 marks)

Answer _____

5 Here are the first four terms of a geometric sequence.

243 81 27 9

- a. Write down the common ratio.
- b. Work out the 5th term and the 6th term.

(3 marks)

Answer _____

6 Here are the first four terms of a geometric sequence.

3 6 12 24

- a. Write an expression for the n th term of the sequence.
- b. Work out the 8th term.

(3 marks)

Answer _____

7 Here are three sequences.

Sequence A: 7 11 15 19

Sequence B: 2 6 18 54

Sequence C: 1 4 5 9 14

- Write down the letter of the geometric sequence.
- Work out the next term of sequence C.
- Work out the 10th term of sequence A.

(3 marks)

Answer _____

8 The first two terms of a Fibonacci-type sequence are 4 and 7. Each term after the second is the sum of the two terms before it.

- Write down the next three terms.
- Another Fibonacci-type sequence starts x , 3, ... Show that its 4th term is $x + 6$.

(4 marks)

Answer _____

9 Here are the first five terms of a Fibonacci-type sequence. Each term after the second is the sum of the two terms before it.

3 x ____ 17 ____

Find the value of x and the 5th term.

(3 marks)

Answer _____

- 10** In a Fibonacci sequence, each term after the second is the sum of the two previous terms.
The first term of a Fibonacci sequence is p .
The second term of the sequence is 5.
The fourth term of the sequence is 22.
Work out the value of p .

(3 marks)

Answer _____

- 11** The first two terms of a geometric sequence are
 5 and $5\sqrt{2}$
a. Work out the 4th term of the sequence.
Give your answer in the form $a\sqrt{2}$ where a is an integer.
b. Find the first term of the sequence that is greater than 100.

(5 marks)

Answer _____

- 12** The first two terms of a Fibonacci-type sequence are 2 and n . Each term after the second is the sum of the two terms before it.
a. Write expressions, in terms of n , for the 3rd, 4th and 5th terms.
b. The 5th term is 31. Work out the value of n .

(4 marks)

Answer _____

13 The first term of a geometric sequence is 2 and the 3rd term is 50. The common ratio is positive.

- a. Work out the common ratio.
- b. Work out the 6th term.

(4 marks)

Answer _____

End of questions | Total 41 marks