

GCSE Maths Sequences and nth Term (Higher): check-up and exam-style questions: worksheet

GCSE Maths - Sequences and nth Term - Higher - Test yourself

Name: _____

Date: _____

Score: _____

26 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch11-sequences/higher/check-up-and-exam-style-questions/

Exercise 11Z Check-up (non-calculator)

Non-calculator

- 1 Write down the next two terms of 4, 11, 18, 25, ...

Answer: _____

- 2 Describe the term-to-term rule of the sequence 5, 15, 45, 135, ...

Answer: _____

- 3 The n th term of a sequence is $5n - 3$. Write down the first four terms.

Answer: _____

- 4 Find the n th term of the sequence 7, 11, 15, 19, ...

Answer: _____

- 5 Find the n th term of the sequence 30, 27, 24, 21, ...

Answer: _____

- 6 The n th term of a sequence is $3n + 1$. Is 100 a term of the sequence?

Answer: _____

- 7 Work out the 12th triangular number.

Answer: _____

- 8 Here is a Fibonacci-type sequence: 2, 3, ?, 8, ? Write down the two missing numbers.

Answer: _____

- 9 The n th term of a sequence is $7n - 4$. Find the first term that is greater than 100.

Answer: _____

- 10 Here are the first three patterns of triangles made from matchsticks. Find the n th term for the number of matchsticks.



Answer: _____

Exercise 11X Exam-style questions

Non-calculator

- 1 Write down the next two terms of the sequence 8, 13, 18, 23, ...

[2 marks]

Answer: _____

- 2** Write down the term-to-term rule for the sequence 2, 6, 18, 54, ... [1 mark]

Answer:

- 3** The n th term of a sequence is $4n + 3$. Write down the first three terms. [2 marks]

Answer:

- 4** Find the n th term of the sequence 6, 11, 16, 21, ... [2 marks]

Answer:

- 5** The n th term of a sequence is $4n - 1$. Is 150 a term of this sequence? You must show your working. [3 marks]

Answer:

- 6** Here are the first three patterns made from matchsticks. Find the n th term, and the number of matchsticks in pattern 40. [3 marks]



Answer:

- 7** Here is a Fibonacci-type sequence: 3, 4, ?, 11, ? Find the two missing numbers. [2 marks]

Answer:

- 8** The n th term of a sequence is $7n - 4$. Find the first term of this sequence that is greater than 200. [3 marks]

Answer:

- 9** Work out the 8th square number and the 5th cube number. [2 marks]

- (a) The 8th square number

Answer:

- (b) The 5th cube number

Answer:

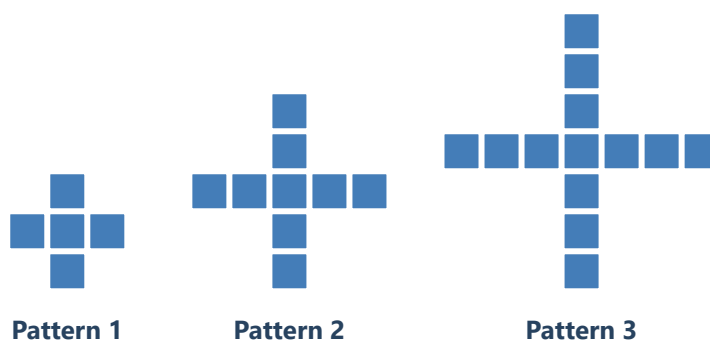
- 10** A van hire company charges a fixed fee plus a daily rate. The cost, in pounds, for 1, 2, 3, 4 days is 42, 54, 66, 78. Find the n th term of this sequence and use it to work out the cost of hiring the van for 15 days.

Answer: [4 marks]

- 11** The first term of a sequence is 4. The rule is "double the term and then subtract 1". Write down the next two terms. [2 marks]

Answer:

- 12** Here are the first three tile patterns. [4 marks]



(a) Find the n th term for the number of tiles.

Answer:

(b) Which pattern has 101 tiles?

Answer:

13 Find the n th term of the quadratic sequence 2, 7, 14, 23, 34, ...

[3 marks]

Answer:

14 In a geometric sequence the 2nd term is 12 and the 5th term is 96. All the terms are positive. Find the common ratio and the n th term of the sequence.

[4 marks]

Answer:

15 The first two terms of a geometric sequence are 3 and $3\sqrt{2}$. Write down the next two terms. Give each term as simply as possible.

[3 marks]

Answer:

16 The n th term of a sequence is $2n + 1$. Prove that the sum of any two consecutive terms is a multiple of 4.

Answer:

[3 marks]