GCSE Maths Sequences and nth Term (Foundation): check-up and exam-style questions: answers

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

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at **websink.site/gcse/maths/ch11-sequences/foundation/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: 32, 39

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

Answer: multiply by 3

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

Answer: 2, 7, 12, 17

4 Find the nth term of the sequence 7, 11, 15, 19, ...

Answer: $4n + 3$

5 Find the nth term of the sequence 30, 27, 24, 21, ...

Answer: $-3n + 33$ (or $33 - 3n$)

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

Answer: Yes, it is the 33rd term

7 Work out the 12th triangular number.

Answer: 78

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

Answer: 5, 13

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

Answer: 101 (the 15th term)

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

Pattern 1 **Pattern 2** **Pattern 3**

Answer: $2n + 1$

Exercise 11X Exam-style questions Non-calculator

1 Write down the next two terms of the sequence 8, 13, 18, 23, ... [2 marks]

Answer: 28, 33

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

Answer: multiply by 3

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

Answer: 7, 11, 15

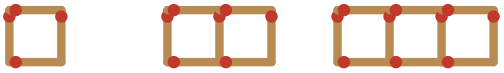
4 Find the nth term of the sequence 6, 11, 16, 21, ... [2 marks]

Answer: $5n + 1$

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

Answer: No

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



Pattern 1 **Pattern 2** **Pattern 3**

Answer: 121 matchsticks

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

Answer: 7, 18

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

Answer: 206 (the 30th term)

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

(a) The 8th square number

Answer: 64

(b) The 5th cube number

Answer: 125

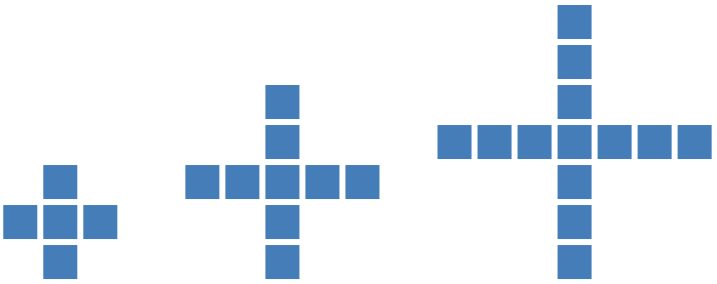
10 A van hire company charges a fixed fee plus a daily rate. The cost, in pounds, for 1, 2, 3, 4 days is 42, 54, 66, 78. Find the nth term of this sequence and use it to work out the cost of hiring the van for 15 days. [4 marks]

Answer: nth term 12n + 30; 15 days cost £210

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: 4, 7, 13

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



Pattern 1 **Pattern 2** **Pattern 3**

(a) Find the nth term for the number of tiles.

Answer: $4n + 1$

(b) Which pattern has 101 tiles?

Answer: Pattern 25

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