

GCSE Maths: Using the nth term (Foundation): worksheet

GCSE Maths - Sequences and nth Term - Foundation - Lesson 11.5

Name: _____

Date: _____

Score: _____

15 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch11-sequences/foundation/using-the-nth-term/

Exercise 11E Using the nth term Non-calculator

1 The nth term of a sequence is $3n + 1$. Is each number a term of the sequence? If it is, say which term.

(a) 31

Answer:

(b) 50

Answer:

(c) 100

Answer:

(d) 151

Answer:

2 The nth term of a sequence is $5n - 2$. Which term of the sequence is each number?

(a) 48

Answer:

(b) 93

Answer:

(c) 198

Answer:

3 Is each number a term of the sequence given? Show how you decide.

(a) Is 100 in 7, 11, 15, 19, ...

Answer:

(b) Is 99 in 3, 9, 15, 21, ...

Answer:

(c) Is 61 in 2, 5, 8, 11, ...

Answer:

(d) Is 87 in 10, 15, 20, 25, ...

Answer:

4 The nth term of a sequence is $20 - 3n$. Is each number a term of the sequence?

(a) -10

Answer:

(b) -11

Answer:

(c) 2

Answer:

(d) 0

Answer:

5 Find the first term of each sequence that is greater than the given number.

(a) nth term $7n - 4$; greater than 100

Answer:

(b) nth term $4n + 1$; greater than 250

Answer:

(c) nth term $9n + 2$; greater than 500

Answer:

(d) nth term $2n + 5$; greater than 1000

Answer:

6 The nth term of each sequence is given. Find the first term that is less than 0.

(a) nth term $50 - 3n$

Answer:

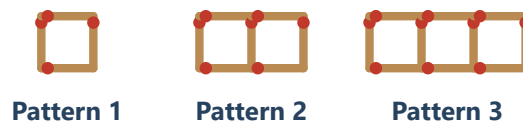
(b) nth term $42 - 5n$

Answer:

(c) nth term $100 - 7n$

Answer:

7 Here are the first three patterns made from matchsticks.



(a) Find the nth term.

Answer:

(b) How many matchsticks are needed for pattern 50?

Answer:

8 Here are the first three patterns of triangles made from matchsticks.



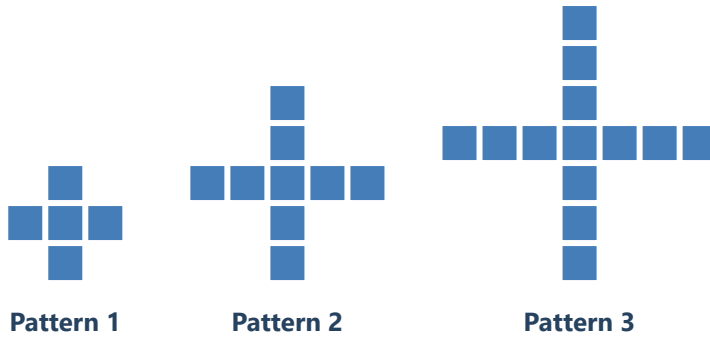
(a) Find the nth term.

Answer:

(b) Which pattern uses exactly 71 matchsticks?

Answer:

9 Here are the first three tile patterns.



(a) Find the n th term.

Answer:

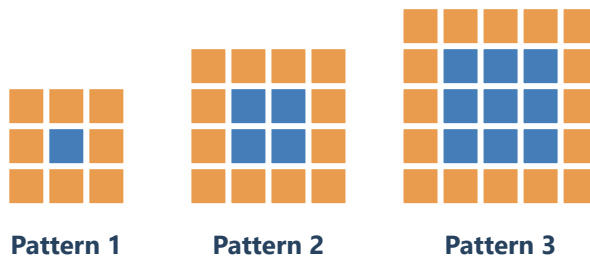
(b) How many tiles are in pattern 20?

Answer:

(c) Which pattern has 101 tiles?

Answer:

10 A square pond is surrounded by a border of paving slabs. Here are the first three patterns, with the pond in blue and the slabs in orange.



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

Answer:

(b) How many slabs are needed to go round a pond that is 25 slabs wide (pattern 25)?

Answer:

11 A taxi company charges £3 plus £2 for each mile. The cost, in pounds, of a journey of n miles is $2n + 3$. Could a journey cost exactly the amount below? If so, how many miles was it?

(a) £47

Answer:

(b) £50

Answer:

12 Tables are pushed together in a row. A row of n tables seats $4n + 2$ people. A club wants every seat to be taken. Could it be done with exactly this many people? If so, how many tables?

(a) 100 people

Answer:

(b) 102 people

Answer:

- 13** The n th term of a sequence is $11n + 5$. Find the largest term of the sequence that is less than 300.

Answer:

- 14** The n th term of a sequence is $6n - 2$. Explain why none of the terms is a multiple of 3.

Answer:

- 15** The n th term of a sequence is $2n + 1$. Explain why every term is an odd number. Hence show that no pattern of triangles made from matchsticks (3, 5, 7, 9, ... matchsticks) can use exactly 100 matchsticks.

Answer:
