

GCSE MATHS • GRADE 4

MATHS



EXAM QUESTION PACK

SEQUENCES

SCORE

/92

PERCENTAGE

%

STEM UP

- 1 The n th term of a sequence is $6n + 4$
Find the first two terms of this sequence.

.....
 / 1

- 2 Here are the first five terms of a sequence.
39 37 35 33 31
Write down the next term in the sequence.

.....
 / 1

- 3 Here are the first five terms of a Fibonacci-type sequence.
1 4 5 9 14
Write down the next two terms in the sequence.

.....
 / 1

- 4 The n th term of a sequence is $7n + 2$
Find the first three terms of this sequence.

.....
 / 1

- 5 Here are the first four terms of a sequence.
30 26 22 18
Write down the next two terms in the sequence.

.....
 / 1

- 6 Here are the first five terms of a Fibonacci-type sequence.
2 7 9 16 25
Write down the next two terms in the sequence.

.....
 / 1

- 7 The n th term of a sequence is $8n - 6$
Work out the 30th term of this sequence.

/ 1

- 8 Here are the first four terms of a sequence.
2 8 32 128
Write down the next term.

/ 1

- 9 The first term in a sequence is 2.
The term-to-term rule is add 2.
Is 17 a term in the sequence?
Give a reason for your answer.

/ 1

- 10** The n th term of a sequence is $2n + 12$
Work out the 50th term of this sequence.

.....
 / 1

- 11** Here are the first four terms of a sequence.
3 6 12 24
Write down the next two terms.

.....
 / 1

- 12** The first term in a sequence is 6.
The term-to-term rule is add 7.
Is 121 a term in the sequence?
Give a reason for your answer.

.....
 / 1

- 13** Here are the first five terms of a sequence.

10 15 22 31 42

Write down the next two terms in the sequence.

/ 1

- 14** Here are the first four terms of a sequence.

5 10 18 29

(a) Write down the next term in the sequence.

(b) Explain how you got your answer.

/ 1

- 15** Here are the first four terms of a number sequence.

6 14 22 30

The rule to continue the sequence is

add 8 to the previous term

Work out the 5th term of this sequence.

/ 1

16 Here are the first five terms of a sequence.

3 6 11 18 27

Write down the next two terms in the sequence.

/ 1

17 Here are the first four terms of a sequence.

13 17 21 25

(a) Write down the next term in the sequence.

(b) Explain how you got your answer.

/ 1

18 Here are the first five terms of a Fibonacci-type sequence.

5 2 7 9 16

Find the 7th term of this sequence.

/ 1

19 Here are the first five terms of a sequence.

1 4 9 16 25

Write down the next two terms in the sequence.

/ 1

20 Here are the first four terms of a sequence.

54 50 46 42

(a) Write down the next term in the sequence.

(b) Explain how you got your answer.

/ 1

21 The n th term of a sequence is $n^2 + 6$

Work out the 10th term of this sequence.

/ 2

22 Here are the first five terms of a Fibonacci-type sequence.

4 2 6 8 14

Find the 8th term of this sequence.

.....
 / 2

23 Here are the first four terms of a sequence.

5 8 13 20

(a) Write down the next term in the sequence.

(b) Explain how you got your answer.

.....
 / 2

24 Here are the first five terms of a Fibonacci-type sequence.

4 1 5 6 11

Find the 8th term of this sequence.

.....
 / 2

- 25 Here are the first four terms of a number sequence.

6 19 58 175

The rule to continue the sequence is
multiply the previous term by 3 and then add 1
Work out the 6th term of this sequence.

/ 2

- 26 The n th term of a sequence is $3n^2 + 6$
Work out the 5th term of this sequence.

/ 2

- 27 Here are the first five terms of a Fibonacci-type sequence.
2 3 5 8 13
Find the 8th term of this sequence.

/ 2

28 Here are the first four terms of an arithmetic sequence.

13 18 23 28

Write down an expression, in terms of n , for the n th term of the sequence.

.....
 / 2

29 The n th term of a sequence is $2n + 3$

Which term of the sequence has the value 95?

.....
 / 2

30 Here are the first five terms of a Fibonacci-type sequence.

2 4 6 10 16

Find the 8th term of this sequence.

.....
 / 2

31 Here are the first five terms of a sequence.

13 18 23 28 33

Find an expression, in terms of n , for the n th term of this sequence.

.....
 / 2

32 The n th term of a sequence is $n^2 + 5$

(a) Find the first three terms of this sequence.

(b) Find the 8th term in this sequence.

.....
 / 2

33 A sequence of patterns is made using tiles.

Pattern 1 uses 8 tiles, pattern 2 uses 14 tiles and pattern 3 uses 20 tiles.

Write an expression, in terms of n , for the number of tiles in pattern n .

.....
 / 2

34 Here are the first five terms of a sequence.

2 4 6 8 10

Find an expression, in terms of n , for the n th term of this sequence.

.....
 / 2

35 Here are the first five terms of a sequence.

59 52 45 38 31

(a) Find the first negative term in the sequence.

(b) Is -28 a term in this sequence? Give a reason for your answer.

.....
 / 2

36 A sequence of patterns is made using tiles.

Pattern 1 uses 11 tiles, pattern 2 uses 15 tiles and pattern 3 uses 19 tiles.

Write an expression, in terms of n , for the number of tiles in pattern n .

.....
 / 2

37 Here are the first five terms of a sequence.

$-3 \quad -7 \quad -11 \quad -15 \quad -19$

Write down an expression, in terms of n , for the n th term of the sequence.

.....
 / 2

38 Here are the first five terms of a sequence.

$32 \quad 25 \quad 18 \quad 11 \quad 4$

(a) Find the first negative term in the sequence.

(b) Is -20 a term in this sequence? Give a reason for your answer.

.....
 / 2

39 A sequence of patterns is made using tiles.

Pattern 1 uses 8 tiles, pattern 2 uses 12 tiles and pattern 3 uses 16 tiles.

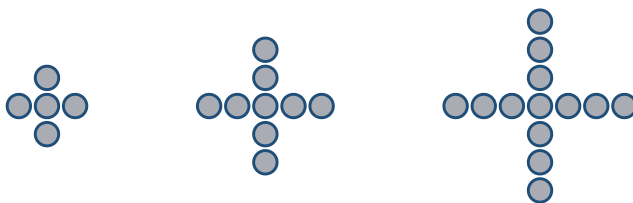
Write an expression, in terms of n , for the number of tiles in pattern n .

.....
 / 3

- 40 The n th term of a sequence is $n^2 + 2$
- (a) Find the first two terms of this sequence.
- (b) Is 28 a term in this sequence?
- You must show how you get your answer.

/ 3

- 41 Here is a sequence of patterns made from grey counters.
- (a) In the space below, draw pattern number 4.
- (b) Work out the total number of counters to make pattern number 8.



pattern number 1

pattern number 2

pattern number 3

/ 3

- 42 Here are the first five terms of a sequence.
- 7 10 15 22 31
- Find an expression, in terms of n , for the n th term of this sequence.

/ 3

- 43 The n th term of a sequence is $n^2 + 5$
- (a) Find the first two terms of this sequence.
- (b) Is 54 a term in this sequence?
- You must show how you get your answer.

/ 3

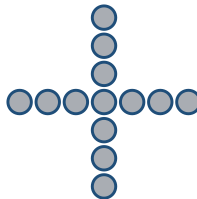
- 44 Here is a sequence of patterns made from grey counters.
- (a) In the space below, draw pattern number 4.
- (b) Work out the total number of counters to make pattern number 10.



pattern number 1



pattern number 2



pattern number 3

/ 3

- 45 Here are the first five terms of a sequence.
- 6 9 14 21 30
- Find an expression, in terms of n , for the n th term of this sequence.

/ 3

- 46** Here is a sequence of patterns made from grey and white tiles.
- (a) In the space below, draw pattern number 4.
- (b) Work out the total number of tiles needed to make pattern number 8.
 Kyle says, "There are 5 white tiles in pattern number 4 so there will be 10 white tiles in pattern number 8."
- (c) Is Kyle right? You must give a reason for your answer.



Pattern 1



Pattern 2



Pattern 3

/ 3

- 47** The 2nd term of an arithmetic sequence is 14.
 The 7th term of the same sequence is 39.
 Find an expression, in terms of n , for the n th term of this sequence.

/ 3

- 48** Here is a sequence of patterns made from grey and white tiles.
- (a) In the space below, draw pattern number 4.
- (b) Work out the total number of tiles needed to make pattern number 10.
 Maya says, "There are 4 white tiles in pattern number 3 so there will be 8 white tiles in pattern number 6."
- (c) Is Maya right? You must give a reason for your answer.



Pattern 1



Pattern 2



Pattern 3

/ 3

- 49** The 2nd term of an arithmetic sequence is 15.
The 6th term of the same sequence is 27.
Find an expression, in terms of n , for the n th term of this sequence.

.....
 / 3

- 50** The 2nd term of an arithmetic sequence is 2.
The 9th term of the same sequence is 23.
Find an expression, in terms of n , for the n th term of this sequence.

.....
 / 3