n^{th} term of Linear Sequences

SCAN ME

REVISE THIS TOPIC

1 The first four terms of an arithmetic sequence are

3 6 9 12 …

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

3n

(Total for Question 1 is 2 marks)

2 The first four terms of an arithmetic sequence are

+4 ↳ 2 4 6 8

6 → 8 → 10 → 12 …

+2 +2 +2

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

2n + 4

(Total for Question 2 is 2 marks)

3 The first four terms of an arithmetic sequence are

-1 ↳ 3 6 9 12

2 → 5 → 5 → 11 …

+3 +3 +3

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

3n − 1

(Total for Question 3 is 2 marks)

4 The first four terms of an arithmetic sequence are

4 8 12 16
9 13 17 21 …
+5 +4 +4 +4

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

$4n + 5$

(Total for Question 4 is 2 marks)

5 The first four terms of an arithmetic sequence are

1 2 3 4
7 8 9 10 …
+6 +1 +1 +1

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

$n + 6$

(Total for Question 5 is 2 marks)

6 The first four terms of an arithmetic sequence are

5 10 15 20
2 7 12 17 …
-3 +5 +5 +5

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

$5n - 3$

(Total for Question 6 is 2 marks)

7 The first four terms of an arithmetic sequence are

+44 ↳ 6 12 18 24

50 → 56 → 62 → 68 …

+6 +6 +6

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

$6n + 44$

(Total for Question 7 is 2 marks)

8 The first four terms of an arithmetic sequence are

-13 ↳ 10 20 30 40

–3 → 7 → 17 → 27 …

+10 +10 +10

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

$10n - 13$

(Total for Question 8 is 2 marks)

9 The first four terms of an arithmetic sequence are

+3·5 ↳ 0·5 1 1·5 2

4 → 4.5 → 5 → 5.5 …

+0·5 +0·5 +0·5

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

$0.5n + 3.5$

(Total for Question 9 is 2 marks)

10 The first four terms of an arithmetic sequence are

+11 -2 -4 -6 -8

9 , 7 , 5 , 3 , …

-2 -2 -2

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

$-2n + 11$

(Total for Question 10 is 2 marks)

11 The first four terms of an arithmetic sequence are

+19 -4 -8 -12 -16

15 , 11 , 7 , 3 , …

-4 -4 -4

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

$-4n + 19$

(Total for Question 11 is 2 marks)

12 The first four terms of an arithmetic sequence are

+14 -5 -10 -15 -20

9 , 4 , –1 , –6 , …

-5 -5 -5

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

$-5n + 14$

(Total for Question 12 is 2 marks)

13 The first four terms of an arithmetic sequence are

+10 ↳ -9 -18 -27 -36

1 → –8 → –17 → –26 …

-9 -9 -9

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

$-9n + 10$

(Total for Question 13 is 2 marks)

14 The first four terms of an arithmetic sequence are

+111 ↳ -11 -22 -33 -44

100 → 89 → 78 → 67 …

-11 -11 -11

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

$-11n + 111$

(Total for Question 14 is 2 marks)

15 The first four terms of an arithmetic sequence are

+6·2 ↳ -0·2 -0·4 -0·6 -0·8

6 → 5.8 → 5.6 → 5.4 …

-0·2 -0·2 -0·2

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

$-0{\cdot}2n + 6{\cdot}2$

(Total for Question 15 is 2 marks)

16 The first five terms of an arithmetic sequence are

+1 → 5, 10, 15, 20, 25

6, 11, 16, 21, 26 …

(+5, +5, +5, +5)

Work out the 20th term of the sequence.

$5n + 1$

$5 \times 20 + 1$

$= 100 + 1$

101

(Total for Question 16 is 3 marks)

17 The first five terms of an arithmetic sequence are

-5 → 6, 12, 18, 24, 30

1, 7, 13, 19, 25 …

(+6, +6, +6, +6)

Work out the 50th term of the sequence.

$6n - 5$

$6 \times 50 - 5$

$= 300 - 5$

295

(Total for Question 17 is 3 marks)

18 The first five terms of an arithmetic sequence are

-2 → 4, 8, 12, 16, 20

2, 6, 10, 14, 18 …

(+4, +4, +4, +4)

Work out the 100th term of the sequence.

$4n - 2$

$4 \times 100 - 2$

$= 400 - 2$

398

(Total for Question 18 is 3 marks)

19 The first five terms of an arithmetic sequence are

4 7 10 13 16 …

Is the number 91 in the sequence?
You must show how you get your answer.

$3n + 1 = 91$

$3n = 90$

$n = 30$

Yes, it is the 30^{th} term

(Total for Question 19 is 3 marks)

20 The first five terms of an arithmetic sequence are

3 7 11 15 19 …

Is the number 201 in the sequence?
You must show how you get your answer.

$4n - 1 = 201$

$4n = 202$

$n = 50.5$

50.5 is not an integer

It is not in the sequence

(Total for Question 20 is 3 marks)

21 The first five terms of an arithmetic sequence are

7 13 19 25 31 …

Is the number 124 in the sequence?
You must show how you get your answer.

$6n + 1 = 124$
$6n = 123$
$n = 20.5$

50.5 is not an integer
It is not in the sequence

(Total for Question 21 is 3 marks)

22 The first five terms of an arithmetic sequence are

50 47 44 41 38 …

Is the number –10 in the sequence?
You must show how you get your answer.

$-3n + 53 = -10$
$-3n = -63$
$n = 9$

Yes, it is the 9th term

(Total for Question 22 is 3 marks)