

Sequences

How to ...

Here are the first 5 terms of an arithmetic sequence.



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

1. work out the difference between $\Rightarrow 6$ each term

2. so this becomes $6n$ (note if the sequence had a difference of -6 this would be $-6n$)

3. work out what the 'zeroth' term would be ... i.e. what would be at the start of the sequence $\Rightarrow -3$

$$6n - 3 \quad (2)$$

Ben says that 150 is in the sequence

(b) Is Ben right?

You must explain your answer .

You could answer this in 2 ways:

1) all the numbers are odd and 150 is even

or algebraically:-

2) $6n - 3 = 150$ / n is not a whole number.

$$6n = 153$$

$$n = 153 \div 6$$

(1)

eg find the 4th term in $3n+2$
 $n=4$
 $3 \times 4 + 2 = 12 + 2$
 $= 14$

Now have a go yourself ...

MUST: find the missing numbers

a) 3 6 9 12 _ _ b) 9 13 17 21 _ _

a) 6 11 16 _ _ b) 14 21 28 _ _

a) _ _ 19 25 31 b) _ _ 8 11 14 17

a) 40 34 28 _ _ b) 10 7 _ 1 _ _

SHOULD:

find the 5th and 11th term using the rule given

a) $3n$ b) $2n + 2$ c) $-3n$

a) $-4n + 2$ b) $4n + 4$ c) $3n + 2$

a) $4n - 14$ b) $3n^2 + 2n$ c) $2n^2$

a) $n^2 + 2$ b) $2n^2 + 2$ c) $2n^2 - 2n$

COULD:

find the n th term rule for each of the following

a) 5 9 13 17 21 b) 4 10 16 22 28

a) 18 14 10 6 2 b) -1 1 3 5 7 9

a) -2 1 4 7 10 b) -5 -8 -11 -14

Exam Questions

Q1. The n th term of a number sequence is given by $3n + 1$

a) Work out the first **two** terms of the number sequence.

(1)

Here are the first four terms of another number sequence.

1 5 9 13

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

(2)

Q2. Here are the first five terms of an arithmetic sequence.

2 6 10 14 18

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

(2)

An expression for the n th term of another sequence is

$$10 - n^2$$

Find the third term of this sequence.

Find the fifth term of this sequence.

(2)

Ready to be marked ?

Checklist



Answer checked



Working out shown

Keywords



Things to remember ...



What went well ...



Teacher comment ..