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

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

$n = 1$ | $n = 2$

$3 \times 1 + 1$ | $3 \times 2 + 1$

$4$ | $7$

4, 7.

(1)

Here are the first four terms of another number sequence.

$-3$ 1 5 9 13

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

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

$4n - 3$

(2)

JustMaths

a) Here are the first four terms of a number sequence.

-2 2 6 10 14

+4 +4 +4

Work out the formula for the *n*th term of this sequence.

$4n - 2$

(2)

b) The *n*th term of another sequence of numbers is given by $n^2 + 3$

Work out the first two terms of this sequence.

for 1st term
$n = 1$
$1^2 + 3$
4

for 2nd term
$n = 2$
$2^2 + 3$
7.

(2)

The *n*th term of a sequence is $45 - 4n$

a) Work out the first **three** terms.

$n = 1$: $45 - 4 \times 1 = 41$

$n = 2$: $45 - 4 \times 2 = 37$

$n = 3$: $45 - 4 \times 3 = 33$

41, 37, 33 (2)

b) Work out the value of the first negative term of the sequence.

41, 37, 33, 29, 25, 21, 17, 13, 9, 5, 1, -3

(2)

JustMaths

Here are the first 5 terms of an arithmetic sequence.

-3 3 9 15 21 27

+6 +6 +6 +6

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

$6n-3$

(2)

Ben says that 150 is in the sequence.

b) Is Ben right?

You must explain your answer.

easy solution

3, 9, 15, 21, 27, 33, 39.

all the terms are odd numbers and 150 is even

(1)

you may also want to try:

if 150 is in the sequence $150 = 6n-3$ can be solved an n will be a whole number

$150 \overset{+3}{} = 6n-3 \overset{+3}{}$

$153 = 6n \quad n = \frac{153}{6}$

$n = 25.5$

which is not a whole number

Here are the first five terms of an arithmetic sequence.

-2 2 6 10 14 18

+4 +4 +4 +4

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

$4n - 2$

(2)

b) An expression for the $n$th term of another sequence is $10 - n^2$

i) Find the third term of this sequence.

$n = 3$ $10 - 3^2 = 10 - 9 = 1$

ii) Find the fifth term of this sequence.

$n = 5$ $10 - 5^2 = 10 - 25 = -15$

(2)

JustMaths

An expression for the $n$th term of a sequence is $n^2 - 2n$

i) Find the 5th term of this sequence.

for the 5th term $n = 5$

$2 \times 5 = 10$

$5^2 - 10 = 25 - 10$

$= 15$

ii) Find the 8th term of this sequence.

For the 8th term $n = 8$

$n^2 - 2n$ ← $2 \times 8 = 16$

$8^2 - 16$

$64 - 16$

$= 48$

(2)