Guide to:
nth term of a linear sequence

maths Links

Explanation:

To find the ***n*th term** of a linear (arithmetic) sequence, use the "**DINO**" method: find the common **D**ifference ***d*** between terms and write ***dn***, then find the **0th term** (work backwards one step before the first term) and write it on the end.

To test whether a number is a term in the sequence, set the ***n*th term equal to that number** and solve for *n*. If ***n* is a positive whole number (integer)**, then the number is in the sequence; if *n* is a fraction or decimal, it is not.

Example 1: Find the *n*th term and the **50th term** of the sequence: **7, 11, 15, 19, 23, …**

Solution:

Common difference = **+4** → starts with **4*n***
0th term (before 7) = 7 − 4 = **+3**
*n*th term = **4*n* + 3**
50th term (*n* = 50): 4(50) + 3 = **203**
Answer: 4*n* + 3; 50th term = 203

Example 2: A sequence has *n*th term **6*n* − 5**. Is **148** a term in this sequence? You must show your working.

Solution:

Set 6*n* − 5 = 148
6*n* = 153 → *n* = 153 ÷ 6 = **25.5**
Since 25.5 is not a whole number (integer),
Answer: No, 148 is not in the sequence.

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