Mathematics

Algebra - Nth Term

Practice Questions

Write down the next two terms of the following sequences:

- 7, 12, 17, 22, ___, ___
- –2, 1, 4, 7, ___, ___

Fill in the missing terms in the following sequences:

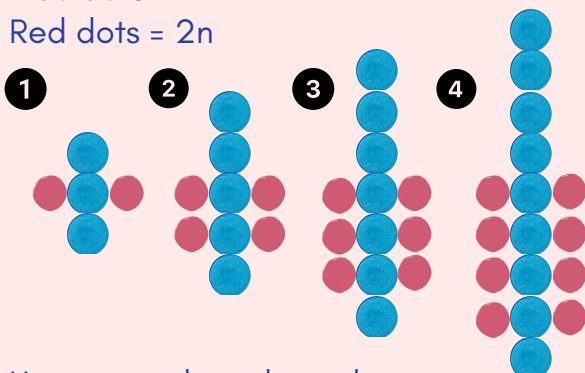- 7, 9, ___, 13, ___, 17
- 4, 9, 14, 11, 24, __, 34, 15, ___

Write down the nth term of the following sequences:

- 7, 11, 15, 19, 23, 27
- 1, 4, 7, 10, 13, 16

Lyra made this sequence using dots.
Blue dots = 2n + 1
Red dots = 2n

How many dots altogether in pattern number 10?

A rollercoaster takes two passengers in a new car every 40 seconds.
How many passengers will have got into new cars after 10 minutes?

What do I do?

The 'n' in 'nth term' stands for the term number.
In a number or picture pattern, each step or term in that sequence has a number, starting at the first term. To calculate the 'nth' term we substitute 'n' with the term number that the question is asking for.

E.g. – The nth term for '3, 6, 9, 12' is 3n because it is the 3 times table and we multiply each term in that sequence by 3.

A sequence such as '4, 7, 10, 13' is still 3n because we are still counting in 3s, but our start number is one more than the three times table, so the nth term is 3n + 1.

Top Tips!

You could be asked to:

- Find the nth term of a sequence
- Find missing values in a number sequence
- Calculate a word or picture problem involving a number sequence

What skills do I need to improve?

Doing lots of practice questions will help with becoming familiar with question types but what else can you do to improve in this area?

- Familiarise yourself with lots of different number sequences. Some will have one pattern and some may have two patterns, alternating.
- Ensure that you are comfortable with negative numbers and can successfully count and calculate the jumps in number sequences which pass over zero.
- Knowing your times tables is really important, it will help you to spot patterns quickly.

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Answers

Write down the next two terms of the following sequences:

- 7, 12, 17, 22, **27, 32**   **+5 each time**
- –2, 1, 4, 7, **10, 13**   **+3 each time**

Fill in the missing terms in the following sequences:

- 7, 9, **11**, 13, **15**, 17   **+2 each time**
- 4, 9, 14, 11, 24, **13**, 34, **44**   **Two sequences +10 and +2**

Write down the nth term of the following sequences:

- 7, 11, 15, 19, 23, 27   **4n + 3**
- 1, 4, 7, 10, 13, 16   **3n - 2**

Lyra made this sequence using dots.
Blue dots = 2n + 1 = **21**
Red dots = 2n   **2 x 10 = 20**   **12 + 20 = 32**

The answer is 30 passengers.
There are 15 lots of 40 seconds in 10 minutes, meaning 15 times a passenger can get on the ride. As the rollercoaster allows *two* passengers on at a time, we need to double 15 to make 30.