Sequences and the nth Term

IGCSE Maths · Grades 9–10 · British and American curriculum · About 25 minutes · 8 questions

Name _____ Date _____ Score / 8

WHAT YOU WILL PRACTISE

- Find the nth term of a linear sequence
- Use an nth term rule to generate terms
- Decide whether a number is a term in a sequence

WORKED EXAMPLE

Find the nth term of the sequence 7, 11, 15, 19, ...

1. Find the common difference: the terms go up by 4, so the rule starts 4n.
2. Write out 4n for n = 1, 2, 3, 4: 4, 8, 12, 16.
3. Compare with the sequence: each term is 3 more, so the rule is 4n + 3.
4. Check with n = 1: 4 × 1 + 3 = 7.

Answer: 4n + 3

Questions

Show your working in the space under each question.

1. Write down the next two terms of the sequence 5, 9, 13, 17, ...

2. Find the nth term of the sequence 4, 7, 10, 13, ...

3. Find the nth term of the sequence 9, 14, 19, 24, ...

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4. Find the nth term of the sequence 20, 17, 14, 11, ...

5. The nth term of a sequence is $4n - 3$. Write down the first three terms.

6. The nth term of a sequence is $6n + 2$. Find the 20th term.

7. The nth term of a sequence is $5n - 1$. Is 99 a term in the sequence? Show how you know.

8. The nth term of a sequence is $n^2 + 2$. Find the 5th term.

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Answers: Sequences and the nth Term

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

Q	QUESTION	ANSWER
1	Write down the next two terms of the sequence 5, 9, 13, 17, …	**21, 25**
2	Find the nth term of the sequence 4, 7, 10, 13, …	**3n + 1**
3	Find the nth term of the sequence 9, 14, 19, 24, …	**5n + 4**
4	Find the nth term of the sequence 20, 17, 14, 11, …	**23 − 3n**
5	The nth term of a sequence is 4n − 3. Write down the first three terms.	**1, 5, 9**
6	The nth term of a sequence is 6n + 2. Find the 20th term.	**122**
7	The nth term of a sequence is 5n − 1. Is 99 a term in the sequence? Show how you know.	**Yes: 5n − 1 = 99 gives n = 20, a whole number**
8	The nth term of a sequence is $n^2 + 2$. Find the 5th term.	**27**

TUTOR TIP

The common difference is the number in front of n. Then compare with that times table to see what to add or subtract.

Stuck on a question? Work through it live with a tutor.

YFCampus offers one-to-one online Maths tutoring matched to your school curriculum. Book a free trial class at **www.yfcampus.com/ae**

Written for students aged 13 to 16 and suitable for Grades 9–10. Check your school’s curriculum for the exact order of topics. YFCampus is independent and is not affiliated with any exam board or education ministry.