GCSE Maths: Arithmetic sequences and the nth term (Foundation): worksheet

GCSE Maths - Sequences and nth Term - Foundation - Lesson 11.4

Name: _____ Date: _____ Score: _____

14 questions. Write your answers in the spaces. Answers and step-by-step help are free at **websink.site/gcse/maths/ch11-sequences/foundation/arithmetic-sequences-and-the-nth-term/**

Exercise 11D The nth term of an arithmetic sequence

Non-calculator

1 Write down the common difference of each sequence.

(a) 4, 7, 10, 13, ...

Answer:

(b) 12, 17, 22, 27, ...

Answer:

(c) 30, 25, 20, 15, ...

Answer:

(d) 9, 7, 5, 3, ...

Answer:

2 Find the nth term of each sequence.

(a) 4, 7, 10, 13, ...

Answer:

(b) 5, 7, 9, 11, ...

Answer:

(c) 3, 8, 13, 18, ...

Answer:

(d) 1, 5, 9, 13, ...

Answer:

(e) 10, 20, 30, 40, ...

Answer:

(f) 2, 9, 16, 23, ...

Answer:

3 Find the nth term of each decreasing sequence.

(a) 20, 17, 14, 11, ...

Answer:

(b) 30, 26, 22, 18, ...

Answer:

(c) 50, 45, 40, 35, ...

Answer:

(d) 9, 7, 5, 3, ...

Answer:

4 **Write down the nth term of each of these sequences.**

(a) The even numbers: 2, 4, 6, 8, ...

Answer:

(b) The odd numbers: 1, 3, 5, 7, ...

Answer:

(c) The multiples of 10: 10, 20, 30, 40, ...

Answer:

(d) The multiples of 6: 6, 12, 18, 24, ...

Answer:

5 **Find the nth term of each sequence, then work out the term asked for.**

(a) 3, 5, 7, 9, ... Find the 50th term.

Answer:

(b) 6, 11, 16, 21, ... Find the 30th term.

Answer:

(c) 2, 8, 14, 20, ... Find the 100th term.

Answer:

(d) 40, 36, 32, 28, ... Find the 12th term.

Answer:

6 **Find the nth term of each arithmetic sequence from its first term and common difference.**

(a) First term 7, common difference 3

Answer:

(b) First term 2, common difference 5

Answer:

(c) First term 20, common difference -4

Answer:

(d) First term 1, common difference 10

Answer:

7 **Ben says the nth term of 6, 10, 14, 18, ... is $6n + 4$. Show that he is wrong and find the correct nth term.**

Answer:

8 **Ahmed saves £12 in week 1, £17 in week 2, £22 in week 3, and so on. Each week he saves £5 more than the week before. How much does he save in week 20?**

Answer:

9 **Tables are pushed together in a row. One table seats 6, two tables seat 10, three tables seat 14, and so on. Find the nth term and use it to work out how many people can sit at 25 tables.**

Answer:

10 **The cost, in pounds, of hiring a bike for 1, 2, 3, 4 hours is £9, £13, £17, £21. The costs form an arithmetic sequence. Find the nth term and the cost of hiring the bike for 10 hours.**

Answer:

11 **Show that the nth term of the sequence 7, 11, 15, 19, … is $4n + 3$.**

Answer:

12 **Ali says the nth term of 8, 11, 14, … is $3n + 5$. Beth says it is $5 + 3n$. Who is right?**

Answer:

13 **The nth term of an arithmetic sequence is $4n - 1$. Write down the first term and the common difference.**

Answer:

14 **Show that every term of the sequence with nth term $3n + 2$ is 2 more than a multiple of 3. Use this to explain why 100 is not a term.**

Answer:

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