



THIRD SPACE
LEARNING

GCSE Exam Questions

Arithmetic Sequences | Algebra

GCSE Exam Questions: Arithmetic Sequences

1) The n^{th} term of a sequence is $4n + 5$.

(a) State the first 5 terms of the sequence.

(b) Is 100 a term in the sequence?

(2)

Show how you calculate your answer.

(2)

(4 marks)

2) Here are the first four terms of an arithmetic sequence:

2, 7, 12, 17

Here are the first five terms of another arithmetic sequence:

-4, -1, 2, 5, 8

Find two numbers that are in both number sequences.

(2 marks)

3) The first four terms of an arithmetic sequence are: 3, 7, 11, 15.

The 20^{th} term of the number sequence is 79.

(a) What is the sum of the 19^{th} and 21^{st} terms?

(2 marks)

GCSE Exam Questions: Arithmetic Sequences

(b) Alma says

“the 30th term is 110 as I multiplied the third term by 10.”

Is Alma correct? Yes or no? Explain your answer.

(4 marks)

4) Here are the first 5 terms in a sequence:

1, -5, -11, -17, -23

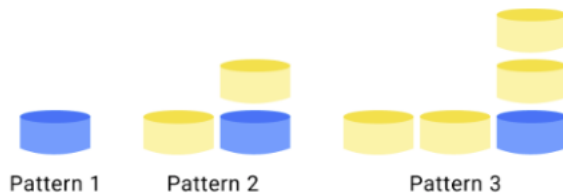
Emily says,

“-100 is not a number in this sequence”.

Explain why Emily is correct

(1 mark)

5) Here are some patterns made up of different coloured sweets.



(a) In the space below, draw Pattern 5.

(1 mark)

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- (b) Each blue sweet is worth 20p. Each yellow sweet is worth 15p.
How much would it cost to create Pattern 5 only?

(4 marks)

- 6) A basketball match is planned to take place in a large stadium.
The most expensive tickets are in the first row. The ticket price for each row forms an arithmetic series. The first four rows are shown in the following table

Row Number	1	2	3	4
Price Per Seat	£50	£47.50	£45	£42.50

- (a) Write down the common difference, d .

(1)

- (b) Calculate the price of a ticket in the 8th row.

(2)

- (c) Find the total cost of buying 2 tickets on row 2 and 5 tickets on row 6.

(3)

(6 marks)

GCSE Exam Questions: Arithmetic Sequences Answers

	Question	Answer	Marks
1)	The n^{th} term of a sequence is $4n + 5$.		
(a)	State the first 5 terms of the sequence.	At least 3 terms 9, 13, 17, 21, 25	(1) (1)
(b)	Is 100 a term in the sequence? Show how you calculate your answer.	No. 100 is an even number and the numbers in the sequence are odd (oe)	(1) (1)
2)	Here are the first four terms of an arithmetic sequence: 2, 7, 12, 17 Here are the first five terms of another arithmetic sequence: -4, -1, 2, 5, 8 Find two numbers that are in both number sequences.	2 17	(1) (1)
3)	The first four terms of an arithmetic sequence are: 3, 7, 11, 15 The 20th term of the number sequence is 79.		
(a)	What is the sum of the 19th and 21st terms?	75 and 83 seen $75 + 83 = 158$ or $79 \times 2 = 158$	(1) (1)
(b)	Alma says “the 30 th term is 110 as I multiplied the third term by 10.” Is Alma correct? Yes or no? Explain your answer.	No 30^{th} term = 119	(1) (1)
4)	Here are the first 5 terms in a sequence: 1, -5, -11, -17, -23 Emily says, “-100 is not a number in this sequence”. Explain why Emily is correct	All terms are odd	(1)

GCSE Exam Questions: Arithmetic Sequences Answers

	Question	Answer	Marks										
5)	Here are some patterns made up of different coloured sweets. (a)  Pattern 1  Pattern 2  Pattern 3 In the space below, draw Pattern 5.	 Pattern 5	(1)										
(b)	Each blue sweet is worth 20p. Each yellow sweet is worth 15p. How much would it cost to create Pattern 5 only?	$8 \times 15\text{p}$ $8 \times 15\text{p} + 20\text{p}$ £1.40	(1) (1) (1)										
6)	A basketball match is planned to take place in a large stadium. The most expensive tickets are in the first row. The ticket price for each row forms an arithmetic series. The first four rows are shown in the following table. <table><tr><td>Row Number</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Price Per Seat</td><td>£50</td><td>£47.50</td><td>£45</td><td>£42.50</td></tr></table> Write down the common difference, d.	Row Number	1	2	3	4	Price Per Seat	£50	£47.50	£45	£42.50	-£2.50	(1)
Row Number	1	2	3	4									
Price Per Seat	£50	£47.50	£45	£42.50									
(b)	Calculate the price of a ticket in the 8th row.	$52.5 - 2.5$ £32.50	(1) (1)										
(c)	Find the total cost of buying 2 tickets on row 2 and 5 tickets on row 6.	$2 \times 47.5 = 95$ $5 \times (52.5 - 2.5(6)) = 187.5$ $95 + 187.5 = \text{£}282.50$	(1) (1) (1)										

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