MME

GCSE MATHEMATICS

AQA | Edexcel | OCR | WJEC

Linear Sequences

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
- mathematical instruments

You ***can*** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1 Here are the 5 first terms of a linear sequence.

$$7, 11, 15, 19, 23$$

1(a) Write down the next **two** terms of the sequence.

[2 marks]

6^{th} term = _____ 7^{th} term = _____

1(b) Give the term to term rule for the sequence.

[1 mark]

_____

_____

_____

_____

Turn over for next question

3

2 The n^{th} term of a sequence can be found using,

$$2n + 2$$

where n is the position in the sequence.

2(a) Write the first 5 terms of the sequence.

[2 marks]

Answer ____, ____, ____, ____, ____

2(b) Work out the 100^{th} term in this sequence.

[1 mark]

Answer

2(c) Explain why the number 155 will not occur in this sequence.

[1 mark]

Answer

Turn over for next question

4

3 Here are the first 5 terms of a linear sequence,

$$5, 9, 13, 17, 21$$

3(a) Write down the next term of the sequence.

[1 mark]

Answer _____

3(b) Find the n^{th} term of this sequence.

[2 marks]

_____

_____

_____

_____

Answer _____

3(c) Hence, or otherwise, find the 47^{th} term in this sequence.

[1 mark]

_____

_____

_____

Answer _____

4 Here are the first 5 terms of a linear sequence.

$$3, 9, 15, 21, 27$$

4(a) Write down the next term of the sequence.

[1 mark]

Answer _____

4(b) Find the n^{th} term of this sequence.

[2 marks]

_____

_____

_____

_____

Answer _____

4(c) Hence, or otherwise, find the 9^{th} term in this sequence.

[1 mark]

_____

_____

_____

Answer _____

5 The n^{th} term of a sequence can be found using

$$4n - 2$$

where n is the position in the sequence.

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

[2 marks]

Answer ____, ____, ____, ____, ____

5(b) Find the position number for the term with the value 82.

[2 marks]

Answer

5(c) Explain how you know whether the number 80 will occur in this sequence or not.

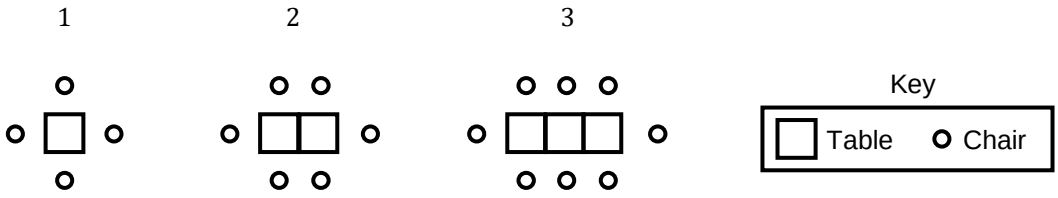
[1 mark]

Answer

Turn over for next question

5

6 Each table can fit a maximum of four chairs. Once tables are pushed together the chairs where the tables join can no longer be placed.



The image above shows the layout of different numbers of tables with chairs.

6(a) Complete the table below with the correct number of chairs for tables.

[2 marks]

Tables	1	2	3	4
Chairs	4	6	___	___

6(b) Sara's street party will need chairs for 115 people.

Chairs cost £2.00 each and tables cost £10.00.

Work out how many tables Sara will need and use this to calculate the total cost.

[4 marks]

Answer _____

End of Questions

6

END