

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

I declare this is my own work.

Level 3 Certificate

MATHEMATICAL STUDIES

Paper 1

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a clean copy of the Preliminary Material and Formulae Sheet (enclosed)
- a scientific calculator or a graphics calculator
- a ruler.

Instructions

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer each question in the space provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Show all necessary working; otherwise marks for method may be lost.
- Do all rough work in this book. Cross through any work you do not want to be marked.
- The **final** answer to questions should be given to an appropriate degree of accuracy.
- You may **not** refer to the copy of the Preliminary Material that was available prior to this examination. A clean copy is enclosed for your use.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You may ask for more answer paper or graph paper, which must be tagged securely to this answer booklet.

For Examiner's Use	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
TOTAL	



Answer **all** questions in the spaces provided.

1 Ismail records the animals he sees on a safari.

Which word does **not** describe the type of data he collects?

Circle your answer.

[1 mark]

qualitative

raw

continuous

primary

1

2 (a) James and Kia are doing a survey about how people travel to work.

James asks 10 people at a bus stop one morning.

Kia asks 40 people, chosen at random, in the town centre every day for a week.

Make **two** comparisons of their methods of collecting data.

[2 marks]

Comparison 1

Comparison 2



- 2 (b)** Amy is also doing a survey about travel.
She collects this information about how teachers travel to her school.

Type of transport	Car	Bus	Walk
Number of teachers	84	36	10

Amy wants to ask some of the teachers more questions about travel.
She decides to ask a sample of 30 of these teachers, stratified by type of transport.

Work out how many teachers she should ask from each group.

[2 marks]

Car _____

Bus _____

Walk _____

4

Turn over for the next question

Turn over ►

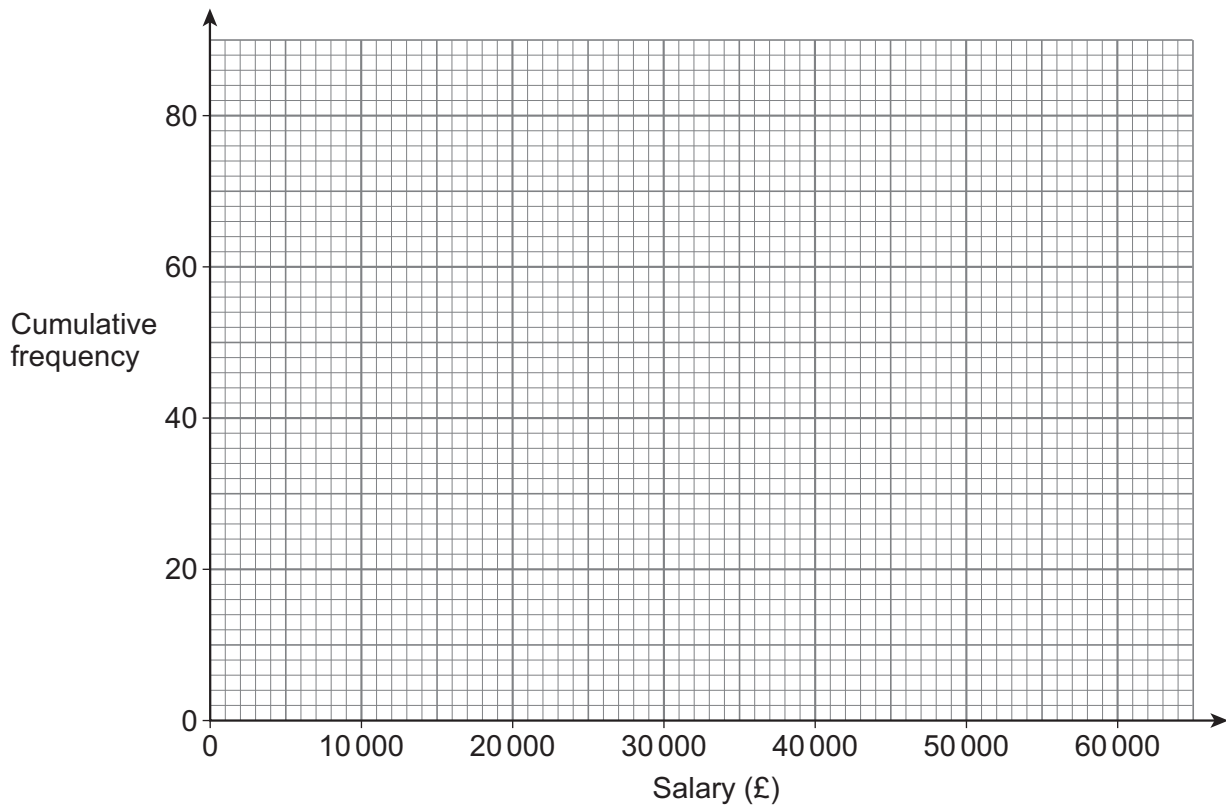


- 3** The table shows information about the annual salaries of 80 people working in sales in the UK.

Salary (£ S)	Frequency	
$0 < S \leq 10\,000$	9	
$10\,000 < S \leq 20\,000$	36	
$20\,000 < S \leq 30\,000$	21	
$30\,000 < S \leq 40\,000$	8	
$40\,000 < S \leq 50\,000$	4	
$50\,000 < S \leq 60\,000$	2	

- 3 (a)** On the grid, draw a cumulative frequency graph to show this information.

[3 marks]



3 (b) Use your graph to estimate the value needed to complete the sentence below.

[2 marks]

20% of these people earn less than £ _____

3 (c) The average salary for all people working in sales in the UK is approximately £22 000

Estimate the percentage of these 80 people who earn **more than** the average salary.

[2 marks]

Answer _____ %

7

Turn over for the next question

Turn over ►



- 5** Two groups of students take part in a long jump competition.
The stem-and-leaf diagram shows the distances jumped by group **A**.



Here is some information about the distances jumped by group **B**.

Median	3.9
Interquartile range (IQR)	1.7

Compare the performances of the two groups.

You **must** show your working.

[5 marks]

5

Turn over ►



Answer _____

7 (b) Explain **how** your answer may have been affected by an assumption you made.

[1 mark]

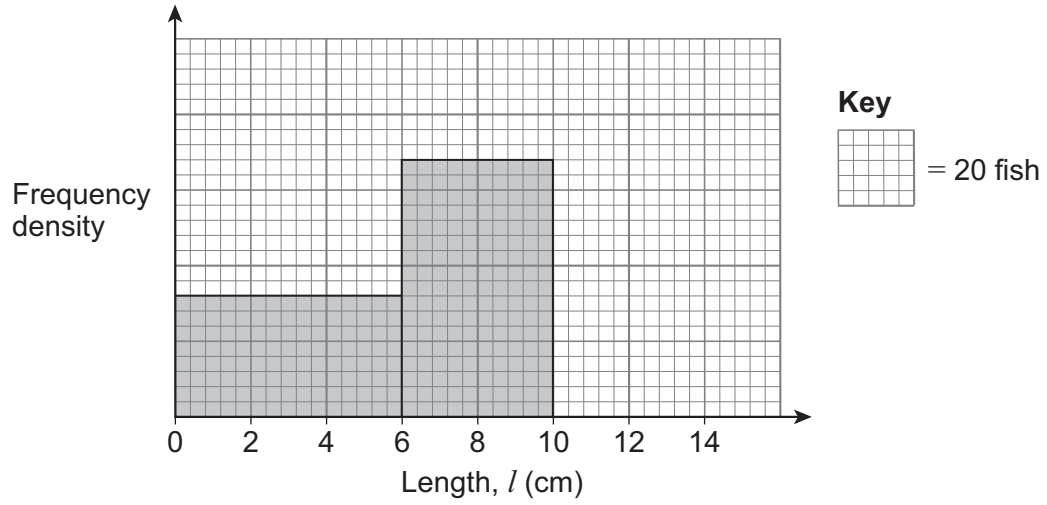
10

Turn over for the next question

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- 9 The histogram shows some information about the lengths, l cm, of fish sold in a month by a garden centre.



- 9 (a) Work out an estimate of the number of fish with lengths in the interval $4.5 < l \leq 10$ [4 marks]

Answer _____



9 (b) The garden centre sold 96 fish with lengths in the interval $10 < l \leq 14$

Add this information to the histogram.

[2 marks]

6

Turn over for the next question

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*Do not write
outside the
box*

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**



