

AQA Level 3 Mathematical Studies 2026 **Practice Paper 1**

Do not turn over the page until instructed to do so.

This assessment is out of 60 marks and you will be given 90 minutes.

When you are asked to by your teacher write your **full name** below

Name:

Total Marks: **/ 60**

1 Josh is interested in whether the students at his Sixth Form prefer lattes or cappuccinos from the coffee shop

- a)** He decides to ask 60 students in the order that they visit the coffee shop on a single morning.
What method of sampling is this?

[1 mark]

- b)** State one advantage and one disadvantage of this method of sampling.

Advantage:

Disadvantage:

[2 marks]

- c) (i)** The number of students in Year 12 is significantly more than the number in Year 13.

Suggest the name of a sampling method that will reflect this difference in size.

[1 mark]

- (ii) Given that there are 1200 pupils in Year 12 and 900 students in Year 12 and that Josh still wants a sample of total size 60, how many pupils from each year group should he ask?

[2 marks]

2 A typical electric shower uses 15 litres of water per minute.

Estimate how many litres of water a typical person may use showering in their lifetime.

State any assumptions that you make.

[4 marks]

3 Tom paid £56.70 per month for his life insurance in 2024.

Each year the cost of the life insurance increases with the rate of inflation in December of the previous year.

a) In 2024 the cost increased by the December 2024 rate of inflation of 3.4 % .

What is the monthly cost for 2025?

£58.63

£75.98

£64.30

£54.77

[1 mark]

b) In fact this increase in cost can be reduced depending on the amount of steps Tom has done in a year as shown in the table below.

Number of Steps	Percentage Reduction
Up to 1 million steps	0.2 %
Up to 3 million steps	0.5 %
Up to 5 million steps	0.7 %
More than 10 million steps	1.0 %

For example if he walked 2 million steps in 2024 the percentage increase would be $3.4 - 0.5 = 2.9\%$

If Tom walks an average of 8500 steps a day, what will the cost of his life insurance be per month in 2025?

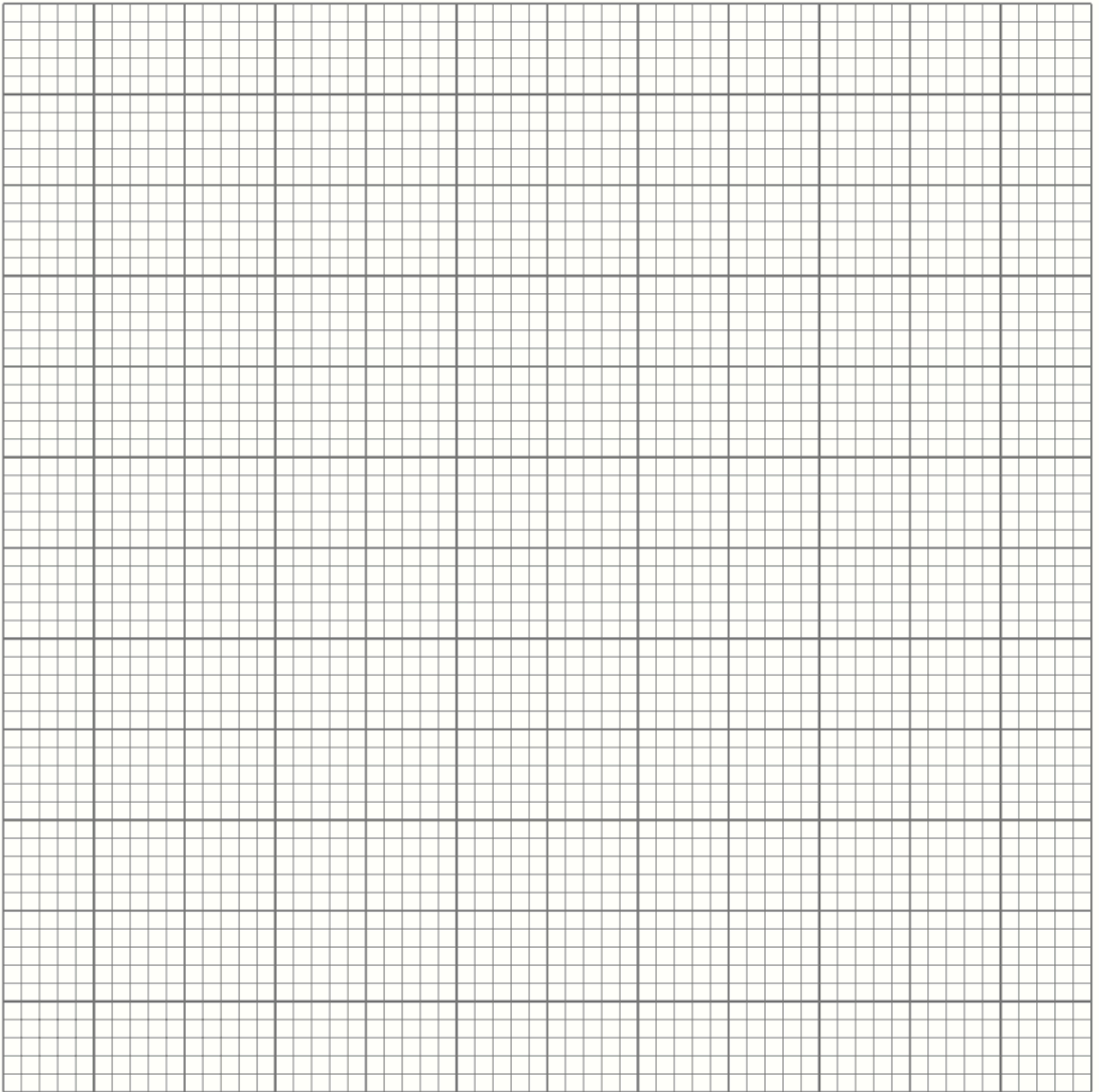
[3 marks]

- 4 The table below shows the age of 100 customers buying from a clothing store

Age, x, (years)	Frequency	
$10 < x \leq 20$	27	
$20 < x \leq 30$	35	
$30 < x \leq 50$	20	
$50 < x \leq 80$	12	
$80 < x \leq 100$	6	

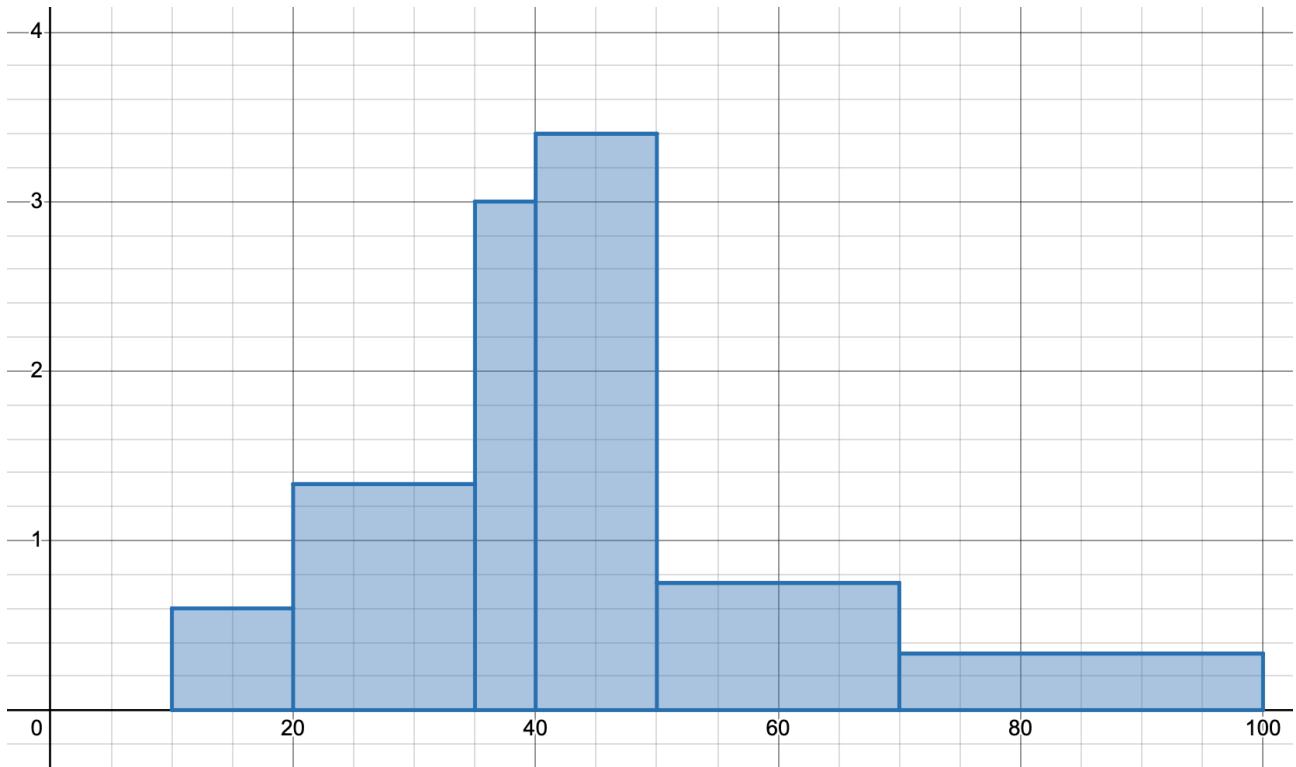
- a) Using a suitable graph find an estimate of the median age of the customers.

[4 marks]



- b) The store runs an advertising campaign with the aim of increasing the age of the average customer. The ages of a sample of 100 customers after the advertising campaign is shown in the histogram below.

Was the campaign successful?



[3 marks]

5 Use **Income Tax and National Insurance 2025-2026** in the preliminary material.

Martha earns a **gross** salary of £65000 a year.

- Tax, National Insurance and Student Loan deductions are deducted from this salary.
- Each month Martha spends £1600 on a mortgage, £600 on essential bills and £500 on lifestyle costs.

Martha says:

“I can take out a car PCP finance at a cost of £550 a month and still be able to save £500 a month.”

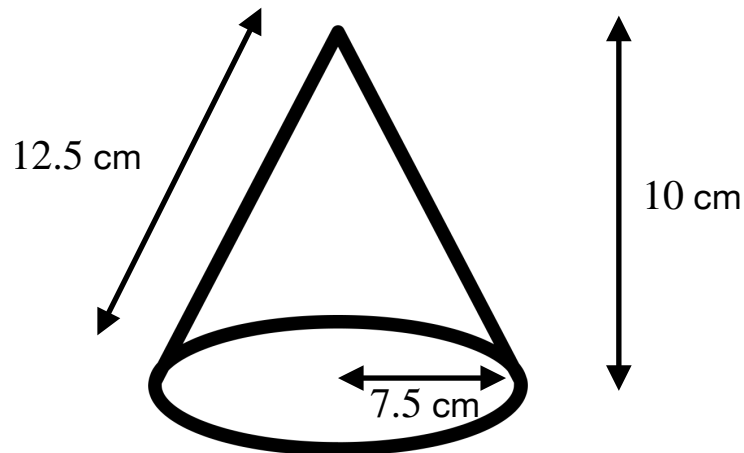
Is Martha correct?

You **must** show your working.

[9 marks]

6 The Party Factory is making party hats and paper plates.

The party hats are in the shape of a hollow cone as shown below



The paper plates have a diameter of 16 cm.

Party hats are made from premium metallic card which costs £4.50 per square metre.

Paper plates are made of regular buff card costing £1.50 per square metre.

There is some card wastage due to cutting out the required shapes.

a) Calculate the cost of materials in producing 50000 plates and 30000 party hats.

Also, estimate the time taken in days to make these.

State **any** assumptions you make.

You **must** show your working.

[7 marks]

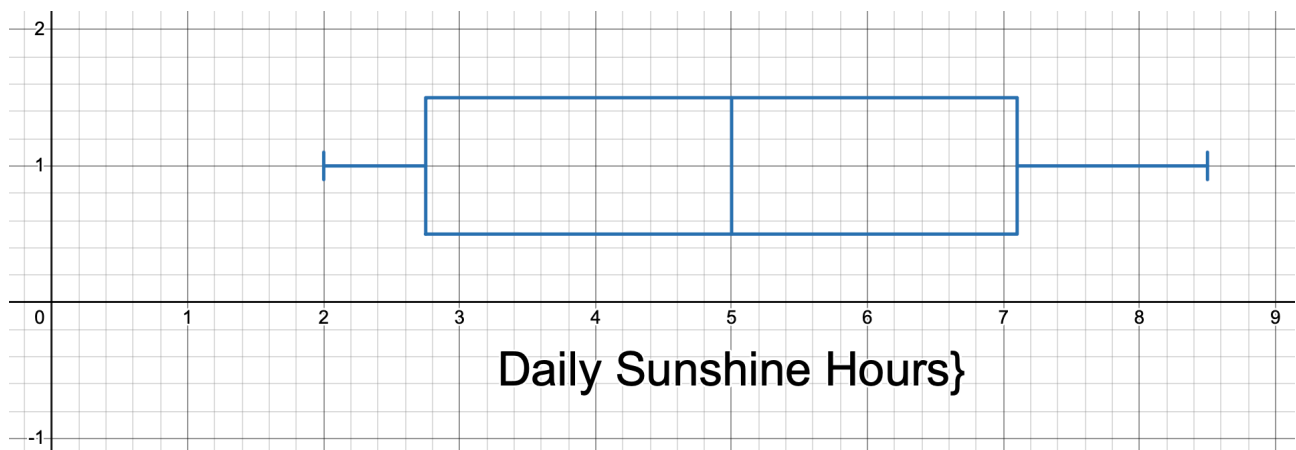
- b)** Explain **how** your answer may have been affected by an assumption you have made?

[1 mark]

- 7 Approximate average daily sunshine hours by month for Cornwall and Madeira are shown in the table below.

Month	Cornwall	Madeira
January	2	5
February	3	5
March	4.5	6
April	5.5	6
May	7.2	7
June	7	7.5
July	8	8.5
August	8.5	8.5
September	5.5	8
October	4	6
November	2.5	5
December	2	5

The data for Cornwall is also shown graphically in the box plot below.



- a) Find the interquartile range for the data for Cornwall.

[1 mark]

- b) Compare the average daily sunshine hours for Cornwall and Madeira by using **one** measure of average and **one** measure of spread.

[4 marks]

- c) Colin wishes to use the daily sunshine hours data for Cornwall to make conclusions about the whole of the UK. Is this a valid thing to?

[2 marks]

- 8 15 boys and 15 girls each sat a maths test.

The boy's scores, out of 40, are shown in the Stem and Leaf diagram below.

Boy's Test Scores

Key: 1 | 5 represents a score of 15

0	4					
1	2	2	7			
2	7	8	9			
3	2	4	4	4	5	8
4	0	0				

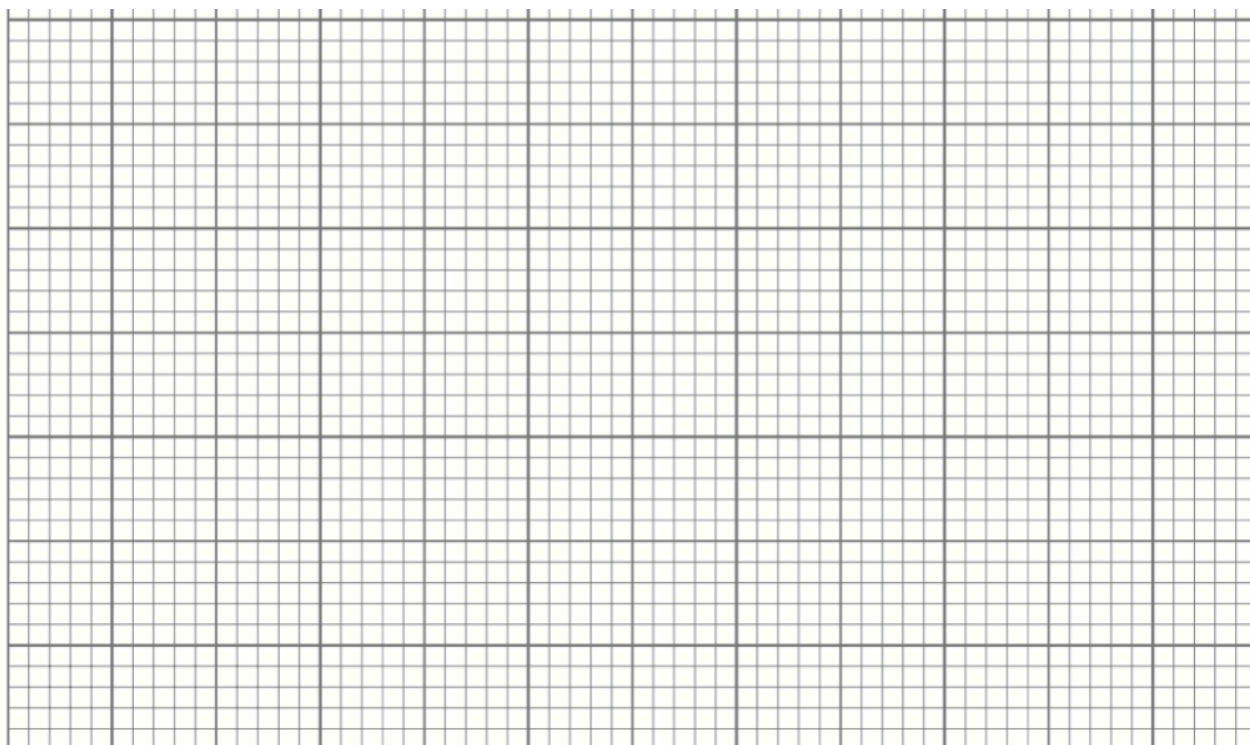
- a) Complete the table below showing summary statistics for the scores of boys and girls.

[2 marks]

	Lowest Value	Lower Quartile	Median	Upper Quartile	Highest Value
Boys Scores					
Girls Scores	8	15	28	32	38

- b) Draw box and whisker plots to represent the data for the boys'

and girls' scores.

A large grid of graph paper, consisting of 20 columns and 20 rows of small squares. The grid is intended for drawing or calculation.

[3 marks]

- c)** Which scores were more consistent? Give a reason for your answer.

[1 mark]

9 Use **Student Loans** in the preliminary material.

Amelia studied Agricultural Science at Felpersham University between September 2020 and August 2023.

She graduated in August 2023 and began working on September 1st 2023, earning a salary of £35000.

How much does Amelia owe on the 1st September 2025?

You may assume the following:

- Interest is added to the loan annually on the 31st August after all repayments for the previous year have been deducted.
- For each year of study Amelia took out a tuition fee loan of £9250 and a maintenance loan of £3100.
- She started repaying in April of the first year after graduation.

[9 marks]

