



GCSE

3310U20 – 1

THURSDAY, 7 NOVEMBER 2024 – MORNING

**MATHEMATICS – NUMERACY
UNIT 2: CALCULATOR – ALLOWED
FOUNDATION TIER**

1 hour 30 minutes plus your additional time allowance

A CALCULATOR WILL BE REQUIRED FOR THIS PAPER

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

For Examiner's use only

Question	Maximum Mark	Mark Awarded
1.	8	
2.	7	
3.	9	
4.	8	
5.	4	
6.	4	
7.	4	
8.	8	
9.	4	
10.	4	
11.	5	
Total	65	

ADDITIONAL MATERIALS

A ruler, protractor and pair of compasses may be required.

ITEMS INCLUDED WITH QUESTION PAPER

A separate Formula List.

A separate Diagram Booklet.

Models for Question 8.

The Diagram Booklet MUST be handed in to the invigilators and sent for marking.

INSTRUCTIONS TO CANDIDATES

Use black ink, black ball – point pen, black felt tip or your usual method.

Write your name, centre number and candidate number in the spaces on the front cover.

Answer ALL questions.

Write your answers in the spaces provided. If you run out of space, use the additional page(s) at the back of this booklet, taking care to number the question(s) correctly.

Take π as $3 \cdot 14$ or use the π button on your calculator.

(Turn over)

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part – question.

In question 1, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

(Turn over)

1. **IN THIS QUESTION, YOU WILL BE ASSESSED ON THE QUALITY OF YOUR ORGANISATION, COMMUNICATION AND ACCURACY IN WRITING.**

Miss Michael is putting on a school show over 3 evenings:

Wednesday, Thursday, and Friday.

The total cost of putting on the show is £2370

Miss Michael sells tickets for the show.

Look at the table for Question 1 in the separate Diagram Booklet.

The number of tickets sold for each evening is shown in the table.

Each ticket costs £6

Miss Michael pays the cost of putting on the show from the ticket money.

She then gives half of the remaining money to a local charity.

continued on the next page . . .

(Turn over)

7

[6 marks + 2 marks OCW]

(Turn over)

2.

Hannah's School of Driving	
First lesson:	£45
All other lessons:	£28 each lesson

(a) Jamie has **5** lessons with Hannah's School of Driving.

Work out the total cost of these lessons.

[2 marks]

continued on the next page . . .

(Turn over)

Question 2 continued

2. (c) Look at the diagrams for Question 2 (c) in the separate Diagram Booklet. There are four diagrams showing a car parked by a pavement.

During her test, the examiner asked Lynne to park the car parallel to the pavement.

Which diagram shows a car parked parallel to a pavement?

Circle your answer.

Diagram 1
Diagram 2
Diagram 3
Diagram 4

[1 mark]

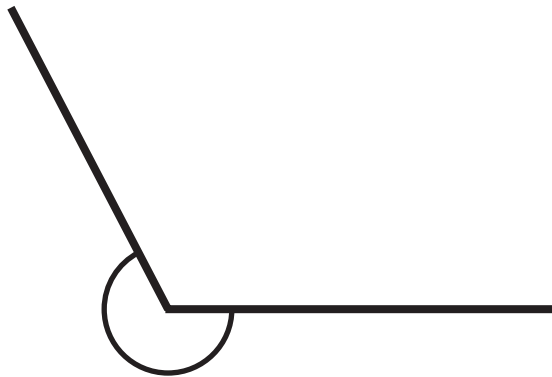
continued on the next page . . .

(Turn over)

Question 2 continued

2. (d) During the test, Lynne had to reverse around a corner.

The angle of the corner is shown below.



What is the name for this angle?

Circle your answer.

Acute angle
Right angle
Obtuse angle
Straight line
Reflex angle

[1 mark]

(Turn over)

3. Dafydd plays football for his local team.

(a) Dafydd is working on his fitness.

Look at the formula for Question 3 in the separate Diagram Booklet.

Dafydd uses this formula to calculate his Body Mass Index (BMI).

Football players should have a BMI between 18 and 24.9

Dafydd's mass is 79 kg and his height is 1.8 metres.

Calculate Dafydd's BMI.

[2 marks]

continued on the next page . . .

(Turn over)

Question 3 continued

3. (b) Dafydd's first game of football was on Saturday.

The match started at 3 p.m.

- **The playing time of the match was $1\frac{1}{2}$ hours.**
- **Half time was 15 minutes long.**
- **After the game, the players completed cool-down exercises and stretching for 20 minutes.**
- **Dafydd took 25 minutes to shower and change.**
- **The journey home took 45 minutes.**

At what time did Dafydd arrive home?

You must show all your working.

(Turn over)

[3 marks]

continued on the next page . . .

(Turn over)

Question 3 continued

3. (c) The list below shows the number of goals that Dafydd’s football team scored in each of their last 7 games.

3 1 6 3 1 1 2

The football coach looks at this data.

(i) The coach says,

“The median number of goals scored per game is three.”

Show that the coach is not correct.

[2 marks]

continued on the next page . . .

(Turn over)

Question 3 (c) continued

3. (c) (ii) What is the mode of the number of goals scored per game for the team?

[1 mark]

(iii) Calculate the range of the number of goals scored per game.

[1 mark]

4. Look at the diagram for Question 4 in the separate Diagram Booklet. The diagram is NOT drawn to scale. The diagram shows a rectangular playground, labelled $ABCD$. Within the playground is a rectangular grass lawn, labelled $EFGH$.

In the diagram:

$$AB = 19 \cdot 4 \text{ metres}$$

$$AD = 10 \cdot 6 \text{ metres}$$

$$EF = 6 \text{ metres}$$

$$EH = 3 \cdot 5 \text{ metres}$$

James lays soft flooring over all the playground except the grass lawn.

- (a) What is the area of playground that James covers with soft flooring?

State the units of your answer.

(Turn over)

[4 marks]

4. (b) James lays an edging strip around the outer perimeter of the playground.
The edging strip costs **£2.95 per metre**.
What is the total cost of the edging strip for the outer perimeter of the playground?

[4 marks]

(Turn over)

5. Look at the diagram for Question 5 in the separate Diagram Booklet. The diagram shows a graph. Yesterday, Jemila cycled along a straight track from home to the beach and back.

- (a) For how many minutes was Jemila 17.5 km from home?

_____ minutes

[1 mark]

- (b) At what time did Jemila first start cycling in the direction of home?
Circle your answer.

13:30	14:15	15:00	15:30	16:00
-------	-------	-------	-------	-------

[1 mark]

continued on the next page . . .

(Turn over)

Question 5 continued

5. (c) By **15:30**, how many kilometres in total had Jemila cycled?

_____ km

[1 mark]

- (d) Jemila was due to get home at **16:30**
She arrived home early.
Approximately how many minutes early was she?

_____ minutes

[1 mark]

(Turn over)

6. Lewis buys an annual discount card to use in a sports shop.

He pays **£9.95** for the discount card.

For one year, Lewis gets **15%** off anything he buys in this sports shop when he shows his discount card.

During the year, Lewis buys the following three items.

Full price BEFORE discount		
Trainers £55	Tennis racket £18	T – shirt £12

How much did Lewis save during the year by using his discount card?

Remember that Lewis had to buy his discount card.

You must show all your working.

(Turn over)

[4 marks]

7. Look at the diagram for Question 7 in the separate Diagram Booklet. The diagram is a Venn diagram. A music teacher asked all Year 7 students to choose which musical instruments they would like to be able to play.

They could choose from three instruments: guitar, drums and violin.

The students could choose as many of these instruments as they wished.

The Venn diagram shows the results.

(a) How many students did not choose an instrument?

_____ students

[1 mark]

(b) How many students chose all 3 instruments?

_____ students

[1 mark]

continued on the next page . . .

(Turn over)

Question 7 continued

7. (c) How many Year 7 students were there?

_____ students

[1 mark]

(d) How many students chose 2 or more instruments?

_____ students

[1 mark]

8. Ask for the models for Question 8. The models are NOT made to scale.

PressiePacs is a company that designs and makes presentation boxes.

- (a) The models represent two designs, small and large.

The small presentation box has the following dimensions:

Length = 10 cm

Width = 10 cm

Height = 10 cm

The large presentation box has the following dimensions:

Length = 12.5 cm

Width = 12.5 cm

PressiePacs wants the large box to have TWICE the volume of the small box.

Calculate the height of the large box.

[5 marks]

8. (b) Customers can use this formula to calculate the cost of a presentation box:

$$\text{Cost in } \pounds = \text{Surface area of the box in cm}^2 \div 240$$

Remember: The small presentation box has the following dimensions:

Length = 10 cm

Width = 10 cm

Height = 10 cm

Calculate the cost of the **SMALL** presentation box.

(Turn over)

Cost of the small presentation box

is £ _____

[3 marks]

9. Look at the diagram for Question 9 in the separate Diagram Booklet. The diagram is a pie chart.

72 000 people were asked to state their main way of travelling to work.

The results are shown accurately in the pie chart.

The people who said 'Public transport' travel to work **EITHER** by bus **OR** by train.

For every person who travels to work by bus, there are **4** people who travel by train.

Calculate the number of people who travel to work by **TRAIN**.

You must show all your working.

[4 marks]

(Turn over)

10. Look at the diagram for Question 10 in the separate Diagram Booklet. The diagram is NOT drawn to scale. The diagram shows a plan of a floor labelled ***ABC***.

In the diagram:

$$AC = 2.7 \text{ metres}$$

$$CB = 4.3 \text{ metres}$$

Angle ***ACB*** is a right angle

Alfred has been given the job of varnishing the floor.

One tin of varnish contains enough to cover an area of 1.6 m^2

Alfred says,

**“I only need 3 tins of varnish
to do this job.”**

Is Alfred correct?

Yes No

You must show all your working.

(Turn over)

[4 marks]

[5 marks]

END OF PAPER

TOTAL 65 MARKS



GCSE

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MATHEMATICS – NUMERACY

UNIT 2: CALCULATOR – ALLOWED

FOUNDATION TIER

**The Diagram Booklet MUST be handed in
to the invigilators and sent for marking.**

Diagram Booklet

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

Question 1

Evening	Number of tickets
Wednesday	256
Thursday	278
Friday	312

Question 2 (c)

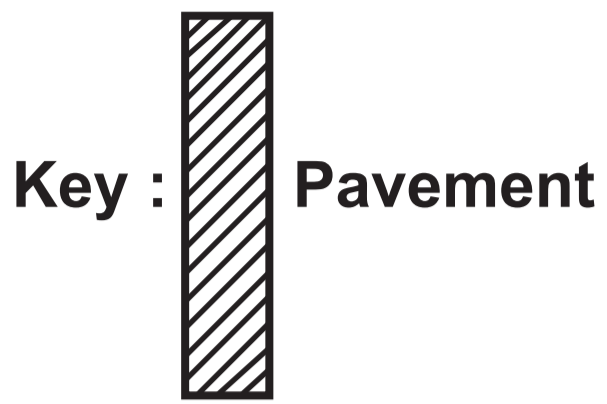


Diagram 1

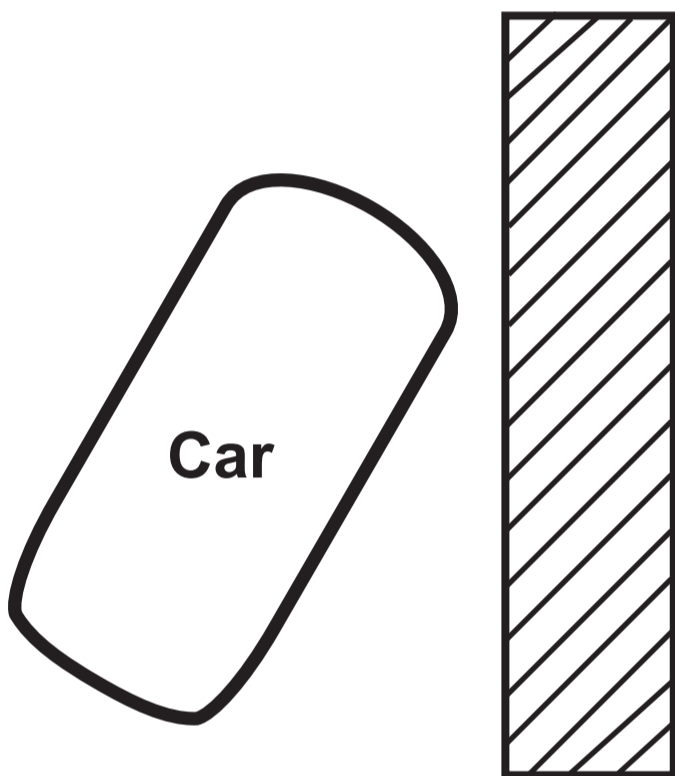


Diagram 2

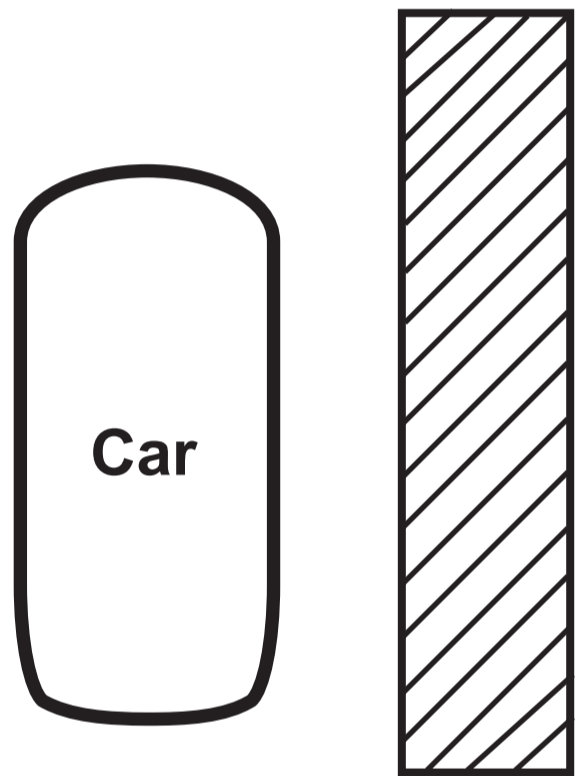


Diagram 3

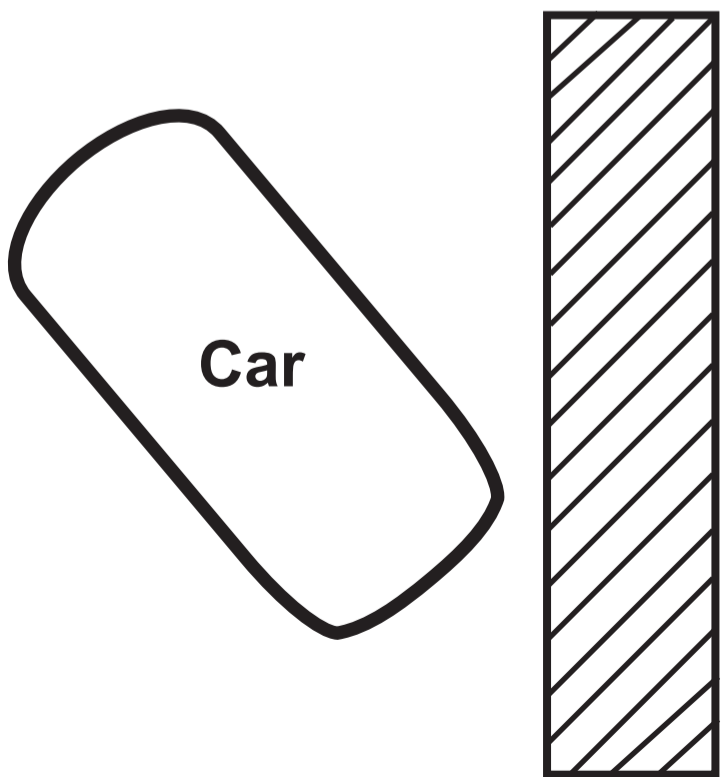
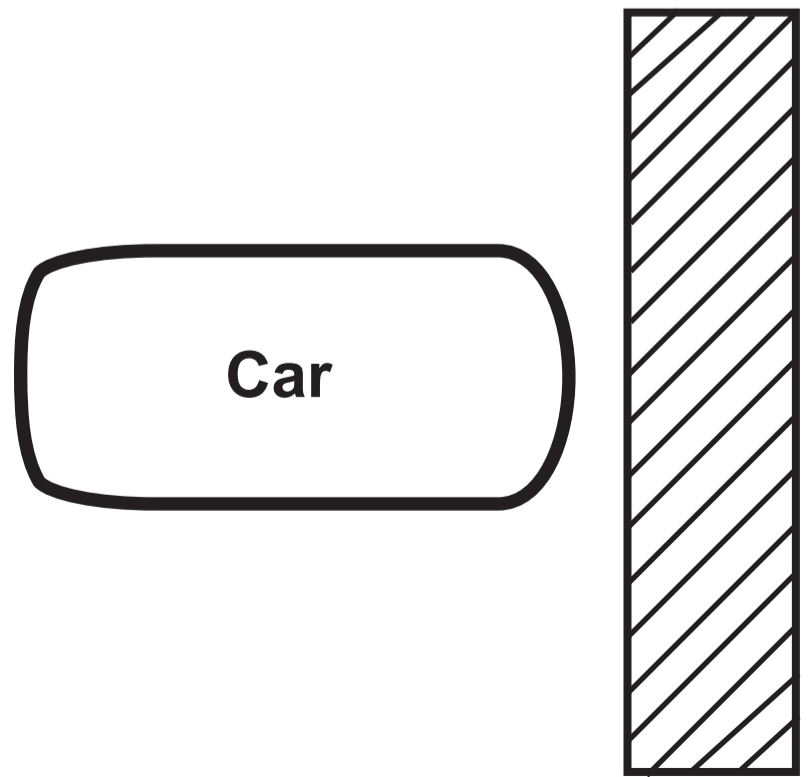


Diagram 4



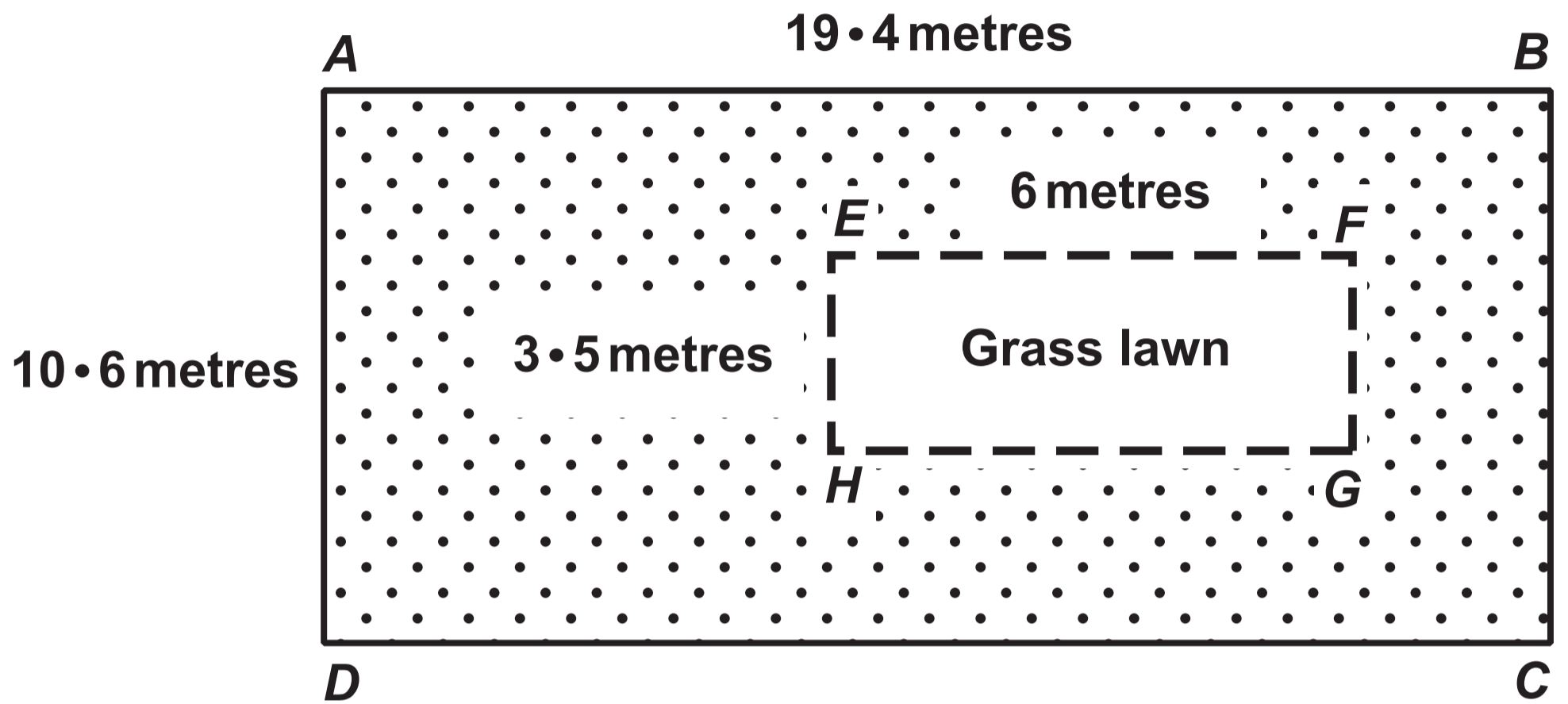
Question 3

$$\text{BMI} = \text{mass} \div \text{height}^2$$

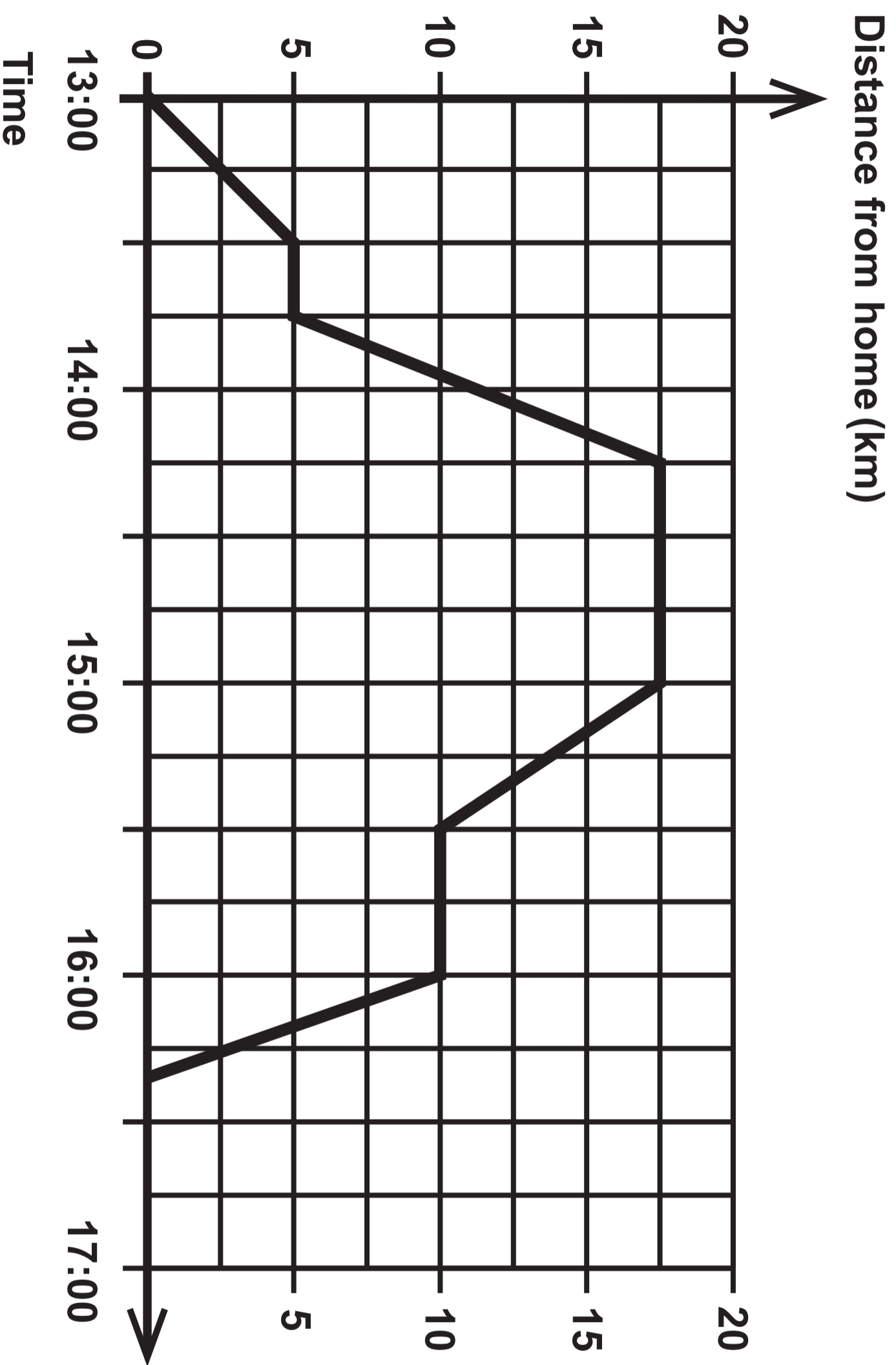
where mass is in kilograms and height is in metres

Question 4

Diagram NOT drawn to scale

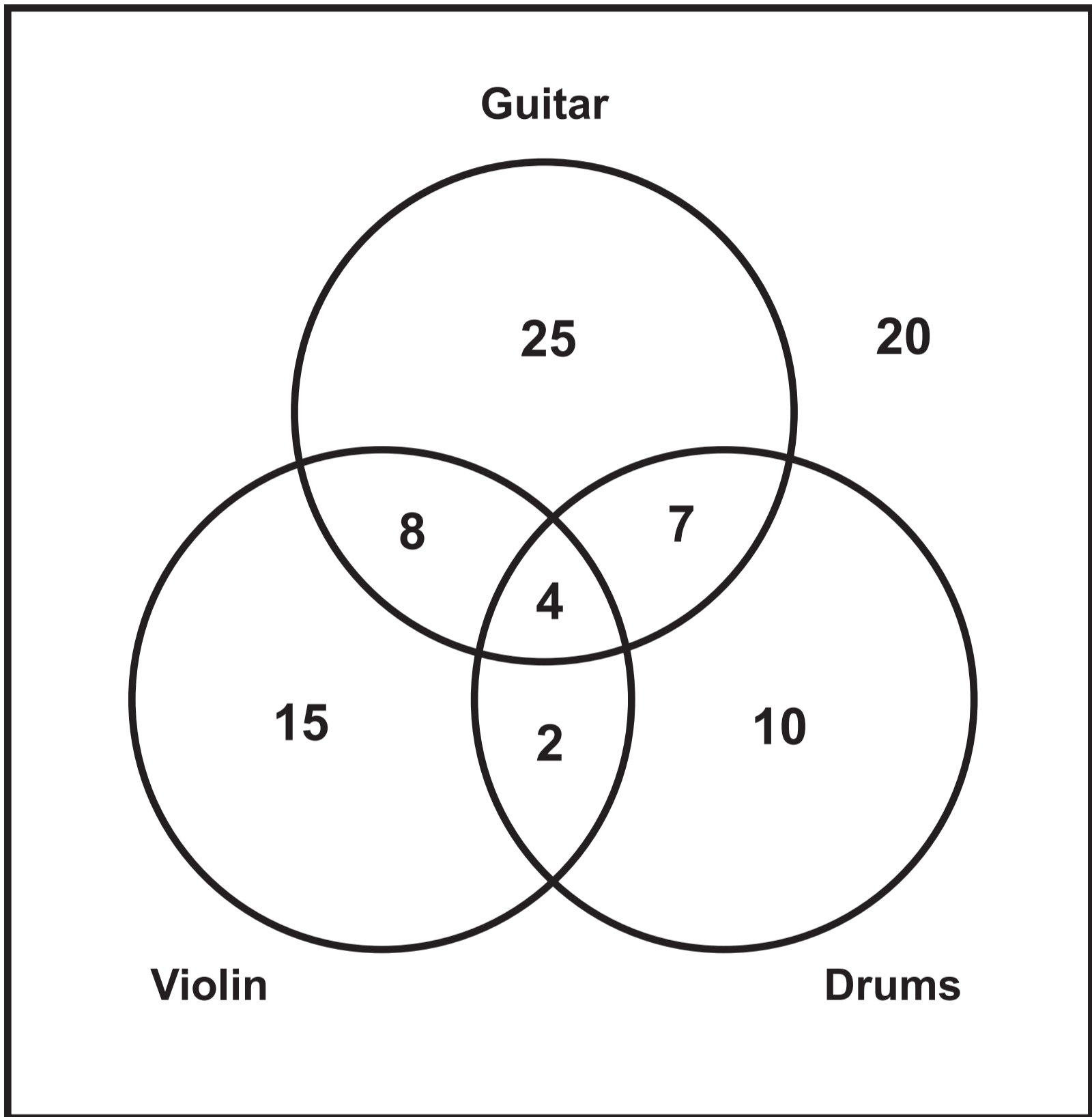


Question 5

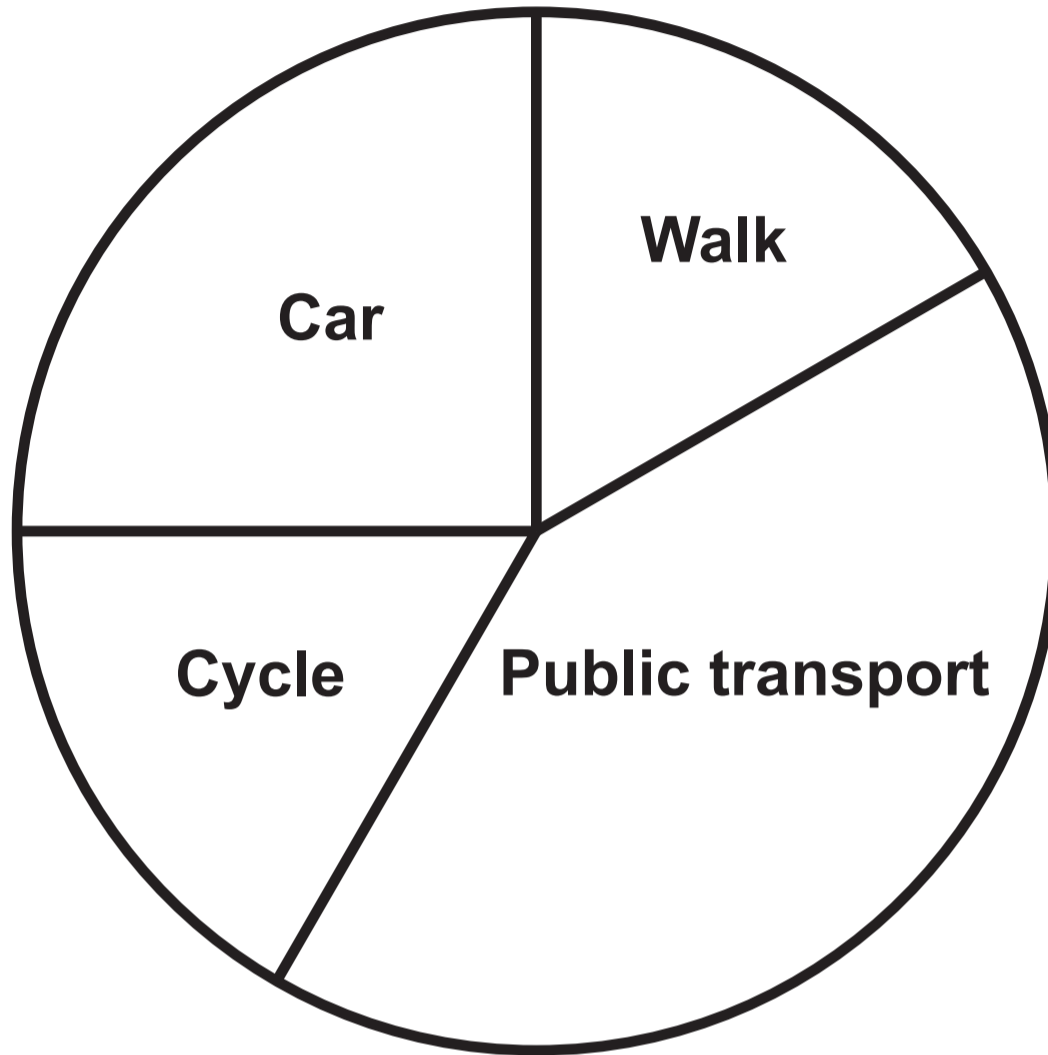


Question 7

ε

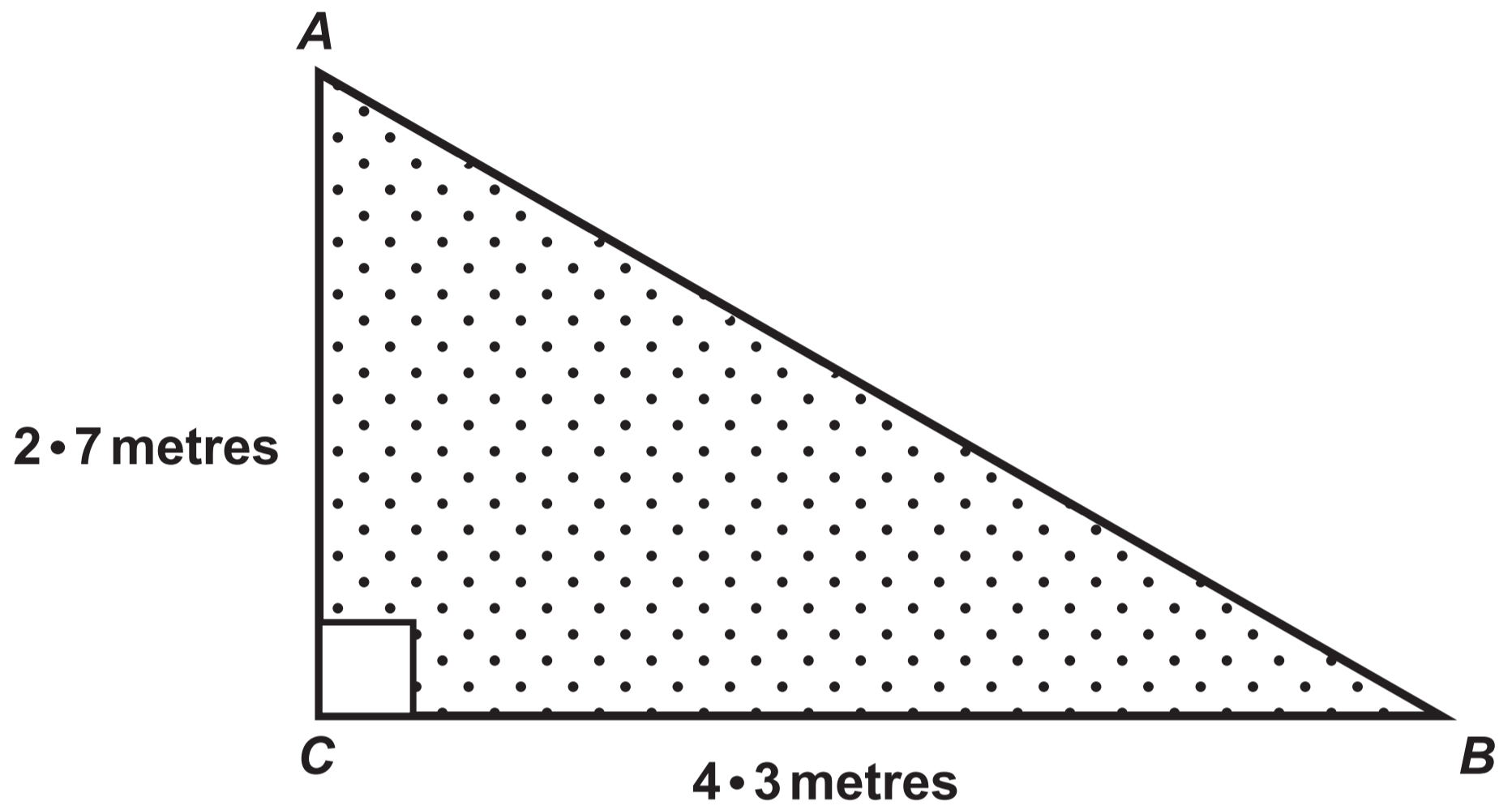


Question 9



Question 10

Diagram NOT drawn to scale



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**FORMULA LIST
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**You must not write on these formula
pages.**

**Anything you write on these formula
pages will gain NO credit.**

Formula List – Foundation Tier

Area of trapezium $= \frac{1}{2} (a + b) h$

