

GCSE – NEW

3310U20-1

MATHEMATICS – NUMERACY

UNIT 2:

CALCULATOR – ALLOWED

FOUNDATION TIER

THURSDAY,

8 JUNE 2017 – MORNING

1 hour 30 minutes

**(plus your additional
time allowance)**

<p>A CALCULATOR WILL BE REQUIRED FOR THIS PAPER</p>
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For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	7	
2.	13	
3.	13	
4.	3	
5.	3	
6.	3	
7.	2	
8.	3	
9.	3	
10.	5	
11.	4	
12.	6	
Total	65	

Surname:	
Other Names:	
Centre Number:	
Candidate Number:	0

ADDITIONAL MATERIALS

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

ITEMS INCLUDED WITH QUESTION PAPER

A separate Formula List.

A separate Diagram Booklet.

A spare Diagram Booklet.

Models for Question 3.

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 continuation pages at the back of the booklet, taking care to number the question(s) correctly.

(Turn over)

Take π as 3.14 or use the π button on your calculator.

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 3 (d), the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

1. Look at the chart provided for Question 1 in the separate Diagram Booklet.

The chart shows the road distances between some towns and cities.

The distances are given in miles.

Wyn lives in Abergavenny and works in Bristol.

- (a) Use the chart to find the road distance from Abergavenny to Bristol.

[1 mark]

Question 1 continued

1. (b) Look at the diagram for Question 1 (b) in the separate Diagram Booklet.
The diagram is NOT drawn to scale.
The diagram shows a map.

Wyn works in Bristol for 5 days each week.

Each day, he drives to and from work using the route shown on the map.

How many miles, in total, does he travel to and from work each week?

[2 marks]

(Turn over)

7

[4 marks]

(Turn over)

2. (a) Look at the table for Question 2 (a) in the separate Diagram Booklet. The table contains the cost of items at an online discount store.

David and Gwyn have decided to take part in a charity running event. They both ordered some new running kit from the online discount store.

- (i) David ordered the following items:
- 1 pair of trainers,
 - 2 pairs of shorts,
 - 3 pairs of socks.

What was the total cost of these items?

You must show all your working.

Question 2 (a) continued

2. (a) (ii) The discount store has a delivery charge of £6.99 for all orders under £100

For all orders of £100 or over, delivery is free.

Gwyn calculated that the cost of the items in his order would be £96.62

Explain how Gwyn would actually save money by adding two pairs of socks to his order.

You must show all your working.

12

[3 marks]

(Turn over)

Question 2 continued

2. (b) Look at the information for Question 2 (b) in the separate Diagram Booklet.

David aims to raise **£200** for his chosen charity.

He set up a “Sponsor me please” page on social media.

This is David’s page at the end of the first week.

The percentage has been blanked out.

- (i) How much more money did David need in order to reach his target?

[1 mark]

continued on the next page . . .

(Turn over)

Question 2 (b) continued

2. (b) (ii) David thought he had raised more than 15% of his target.

Was he correct?

Show your working.

[2 marks]

(iii) After two weeks, David had raised 57% of his target.

What percentage of his target was still to be raised?

[1 mark]

(Turn over)

Question 2 continued

- 2. (c) Look at the chart for Question 2 (c) in the separate Diagram Booklet.**

David and Gwyn kept a training record as they prepared for the charity event. They recorded the number of miles that they ran each day.

The mileage for week one is shown in the chart.

Gwyn thinks that his average daily mileage is greater than David's.

Explain why using the MEDIANS would not show this.

You must show all your working.

[3 marks]

(Turn over)

3. Ask for the models for Question 3.

There are four models, A, B, C and D.

Each model represents a candle.

Delyth runs her own business making and selling candles.

She makes and sells four types of candle.

The candles are 3-D solid shapes.

(a) Look at the table for Question 3 (a) in the separate Diagram Booklet.

Fill in the names of the 3-D solids shown in the table.

[2 marks]

continued on the next page . . .

(Turn over)

Question 3 (b) continued

3. (b) Delyth uses a formula to work out the mass of wax that is needed to make one candle.

$$\text{Mass of wax in grams} = \frac{3 \times \text{volume of candle}}{5}$$

- (i) What mass of wax will be needed to make a candle of type C?

Mass of the wax of a candle

of type C is _____ grams

[2 marks]

continued on the next page . . .

(Turn over)

Question 3 (b) continued

**3. (b) (ii) Delyth has enough wax to make
50 candles of type A.**

**How many type D candles can she
make with the same amount of wax?**

[2 marks]

Question 3 continued

3. (c) Delyth also makes small candles.

One of these candles fits in a box with a lid.

The box is a cube with sides of length 4 cm.

**Using the squared paper provided
for Question 3 (c) in the separate
Diagram Booklet, draw a net of the box,
including the lid.**

Two faces have been drawn for you.

[2 marks]

(Turn over)

Question 3 continued

3. (d) IN THIS PART OF THE QUESTION, YOU WILL BE ASSESSED ON THE QUALITY OF YOUR ORGANISATION, COMMUNICATION AND ACCURACY IN WRITING.

It costs Delyth **£2.35** to make each small candle.

It costs **15p** to make each box.

Delyth sells **20** candles, each in a separate box, for a total of **£84**

How much profit does Delyth make?

You must show all your working.

[3 marks + 2 marks OCW]

(Turn over)

4. Look at the information provided for Question 4 in the separate Diagram Booklet.

The information shows a bus timetable.

- (a) At what time does the first bus after **09:00** leave Orme Station?

Circle your answer.

09:05	09:12	09:18	09:24	09:30
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[1 mark]

(Turn over)

5. Luigi lives in south Wales.

Rosina lives in west Wales.

For each of the first **65** days of **2017**,
they recorded whether or not it rained.

Luigi recorded that it rained on
28 of these days.

Rosina recorded that it rained on
40% of these **65** days.

Luigi says,

‘For the first **65** days of **2017**, there were
more days with rain where I live than where
Rosina lives.’

Is Luigi correct?

You must show all your working.

6. Look at the diagram for Question 6 in the separate Diagram Booklet.

The diagram shows two pie charts.

Tomos is looking at gym memberships for HADON'S GYM and WORKOUT PALACE. Each of these gyms displays its membership in a pie chart.

(a) About what percentage of the members at HADON'S GYM are children?

Circle your answer.

10%	20%	30%	40%	50%
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[1 mark]

(Turn over)

Question 6 continued

6. (b) Which of the following is the best estimate for the percentage of the members at **WORKOUT PALACE** who are women?
Circle your answer.

25%	28%	30%	32%	38%
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[1 mark]

(Turn over)

Question 6 continued

6. (c) Tomos says,

**‘There are more men with membership
at HADON’S GYM than at
WORKOUT PALACE.’**

Is Tomos CERTAIN to be correct?

You must give a reason for your answer.

Yes

No

[1 mark]

(Turn over)

7. Look at the diagram for Question 7 in the separate Diagram Booklet. The diagram is a scatter diagram.

A group of friends measured the heights and masses of their pets.

The scatter diagram shows the results.

- (a) Describe the correlation shown by this scatter diagram.

[1 mark]

- (b) The friends notice that the tallest pet has the same mass as another pet. What is the height of this other pet?

_____ cm

[1 mark]

(Turn over)

9. (a) Look at the information provided for Question 9 (a) in the separate Diagram Booklet.

The information is a recipe.

Gustav is making some scones for his sister's birthday party.

How much self raising flour will Gustav need to make **30** scones?

Circle your answer.

900 g	1000 g	1100 g	1125 g	1350 g
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[1 mark]

(Turn over)

Question 9 continued

9. (b) In the recipe, the temperature of the oven is given in degrees Fahrenheit, F .

The temperature gauge on Gustav's oven shows degrees Celsius, C .

The formula below is used to convert Fahrenheit into Celsius.

$$C = \frac{5F - 160}{9}$$

At what temperature should Gustav bake the scones?

Give your answer in degrees Celsius.

(Turn over)

36

°C

[2 marks]

(Turn over)

10. Look at the diagram for Question 10 in the separate Diagram Booklet.

The diagram shows a conversion graph.

Alun has made his own conversion graph to change knots to miles per hour.

(a) Use Alun's conversion graph to write 150 knots in miles per hour.

[1 mark]

(Turn over)

Question 10 continued

10. (b) Nikita thinks Alun's conversion graph may be inaccurate.

Nikita knows that **1000** knots is **1150.779** miles per hour, correct to **3** decimal places.

Convert **20** knots to miles per hour

- using Alun's conversion graph, and then
- using Nikita's values.

Calculate the difference, in miles per hour, between your answers.

Give your answer correct to **2** decimal places.

You must show all your working.

11. (a) Look at the diagram for Question 11 (a) in the separate Diagram Booklet.

The diagram shows a graph.

Miss Rashud gave her Year 9 French class a test on Wednesday.

She asked her class to spell

12 different words.

She displays the results as shown.

(i) How many pupils scored MORE THAN 9 in the test?

[1 mark]

(ii) How many pupils are there in Miss Rashud's French class?

[1 mark]

continued on the next page . . .

(Turn over)

Question 11 continued

11. (a) (iii) What assumption have you made in answering part (ii)?

[1 mark]

(b) Look at the diagram for Question 11 (b) in the separate Diagram Booklet.

The diagram shows a graph.

Miss Rashud also gave the same test to her Year 10 French class on Wednesday.

She asked her class to spell the same 12 words.

She displays the results as shown.

continued on the next page . . .

(Turn over)

Question 11 (b) continued

Catrin looks at the two sets of data
Miss Rashud has displayed.

She says,

‘Year **10** are better at spelling
than Year **9**.’

Is Catrin’s statement correct?

You must give values to support
your answer.

Catrin is correct Catrin is incorrect

[1 mark]

(Turn over)

12. ORGANICS4U is a company based in Wales that delivers organic products.

ORGANICS4U has 16 vehicles on the road every working day.

The company has 6 vans and 10 trucks.

Look at the information provided for Question 12 in the separate Diagram Booklet.

Ffion has the information shown for each type of vehicle.

The fuel used by all of the 16 vehicles costs £1.10 per litre.

Use this information to calculate the TOTAL fuel bill for 1 working day.

You must show all your working.

[6 marks]

END OF PAPER

TOTAL 65 MARKS

(Turn over)

GCSE – NEW

3310U20-1



MATHEMATICS – NUMERACY

UNIT 2: CALCULATOR – ALLOWED

FOUNDATION TIER

THURSDAY, 8 JUNE 2017 – MORNING

Diagram Booklet

Surname:	
Other Names:	
Centre Number:	
Candidate Number:	0

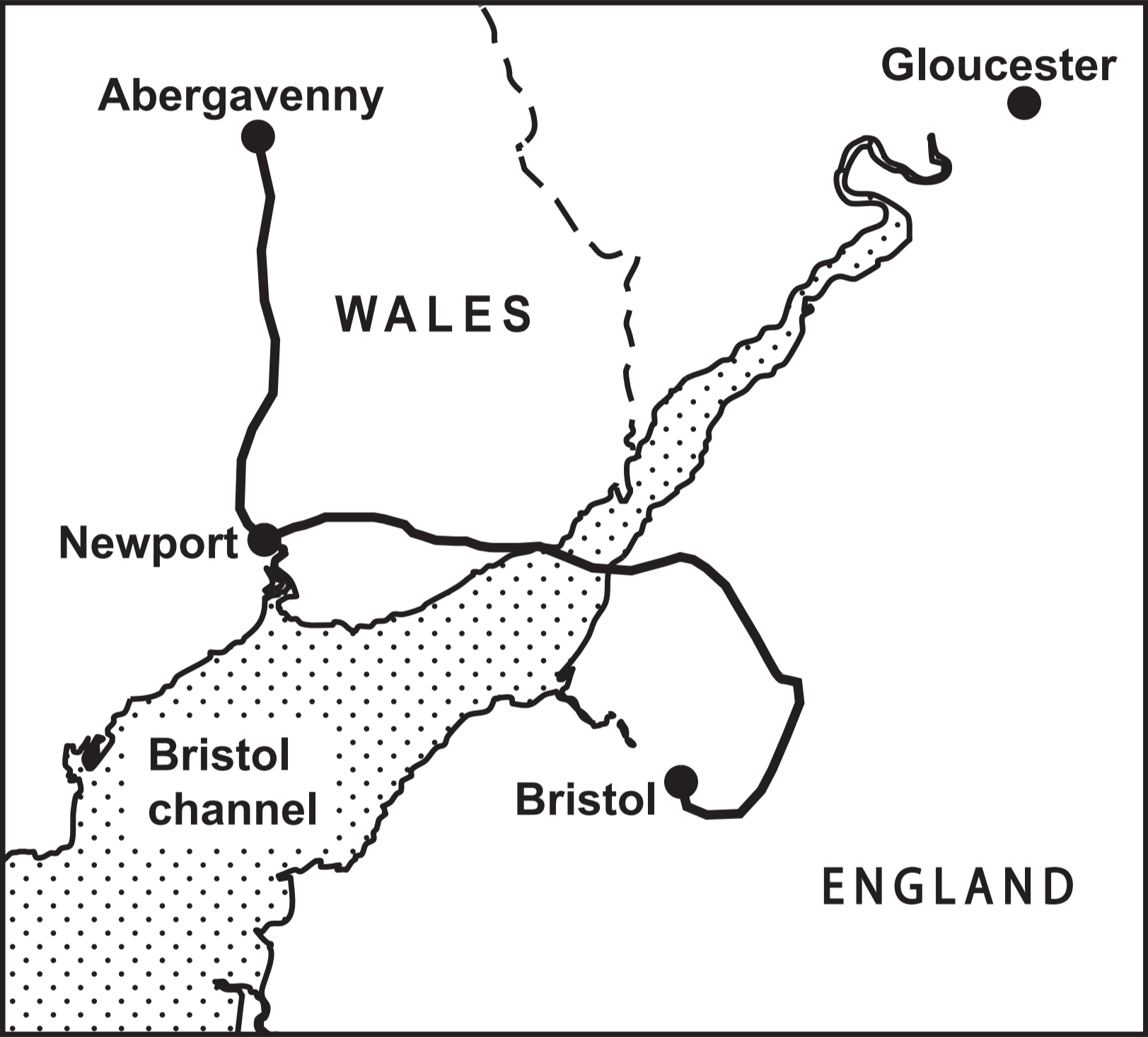
Question 1

Chart

ABERGAVENNY			
18	NEWPORT		
45	53	GLOUCESTER	
50	32	36	BRISTOL

Question 1 (b)

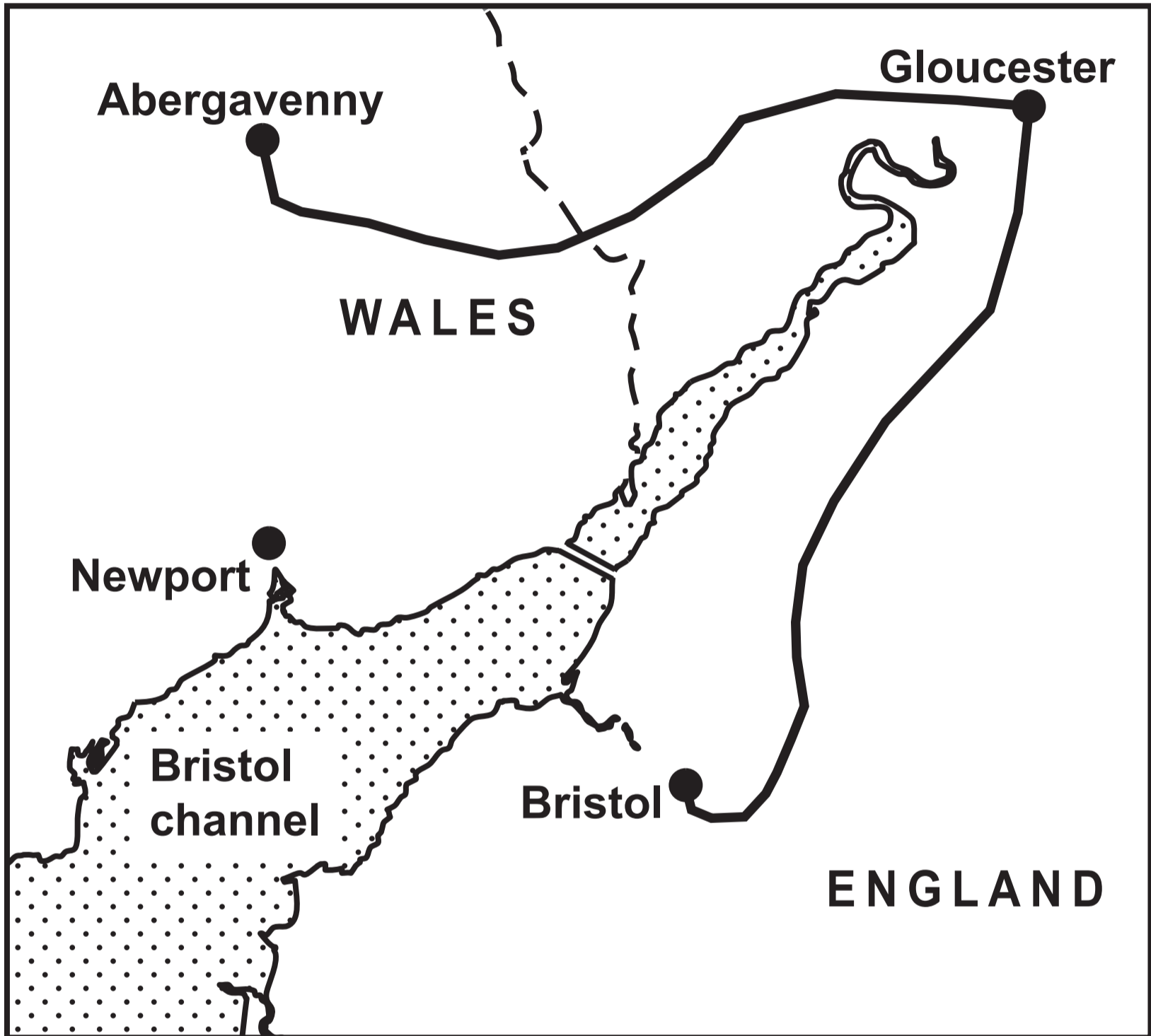
Diagram NOT drawn to scale



Question 1 (c)

Diagram NOT drawn to scale

Alternative Route



Question 2 (a)

Table

A pair of trainers	£39.99
A pair of socks	£2.99
A pair of leggings	£12.90
A running vest	£15.50
A pair of shorts	£11.98
A water bottle	£6.00

Question 2 (b)

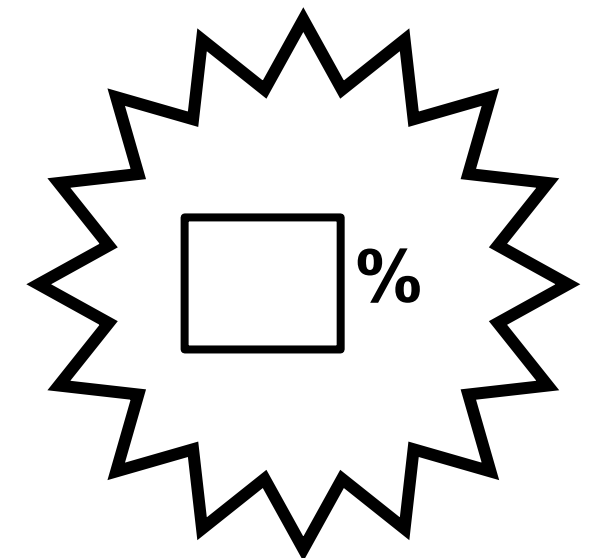
Information

DAVID'S PAGE

David is raising money for a charity.

Please help him to reach his target of £200

CURRENT TOTAL
RAISED
£32.00



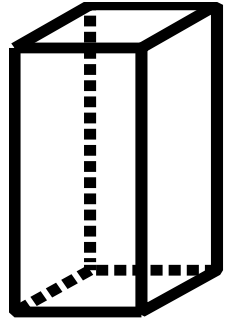
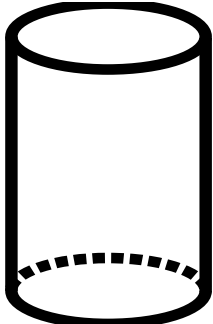
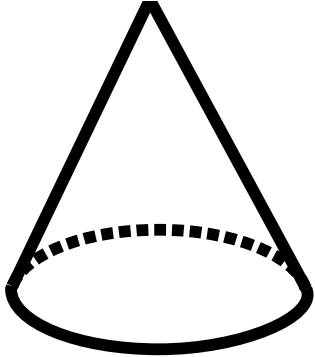
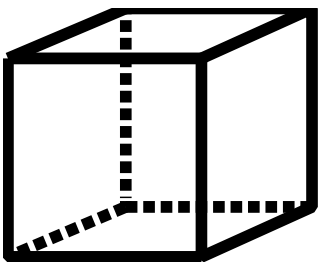
Donate

Question 2 (c)

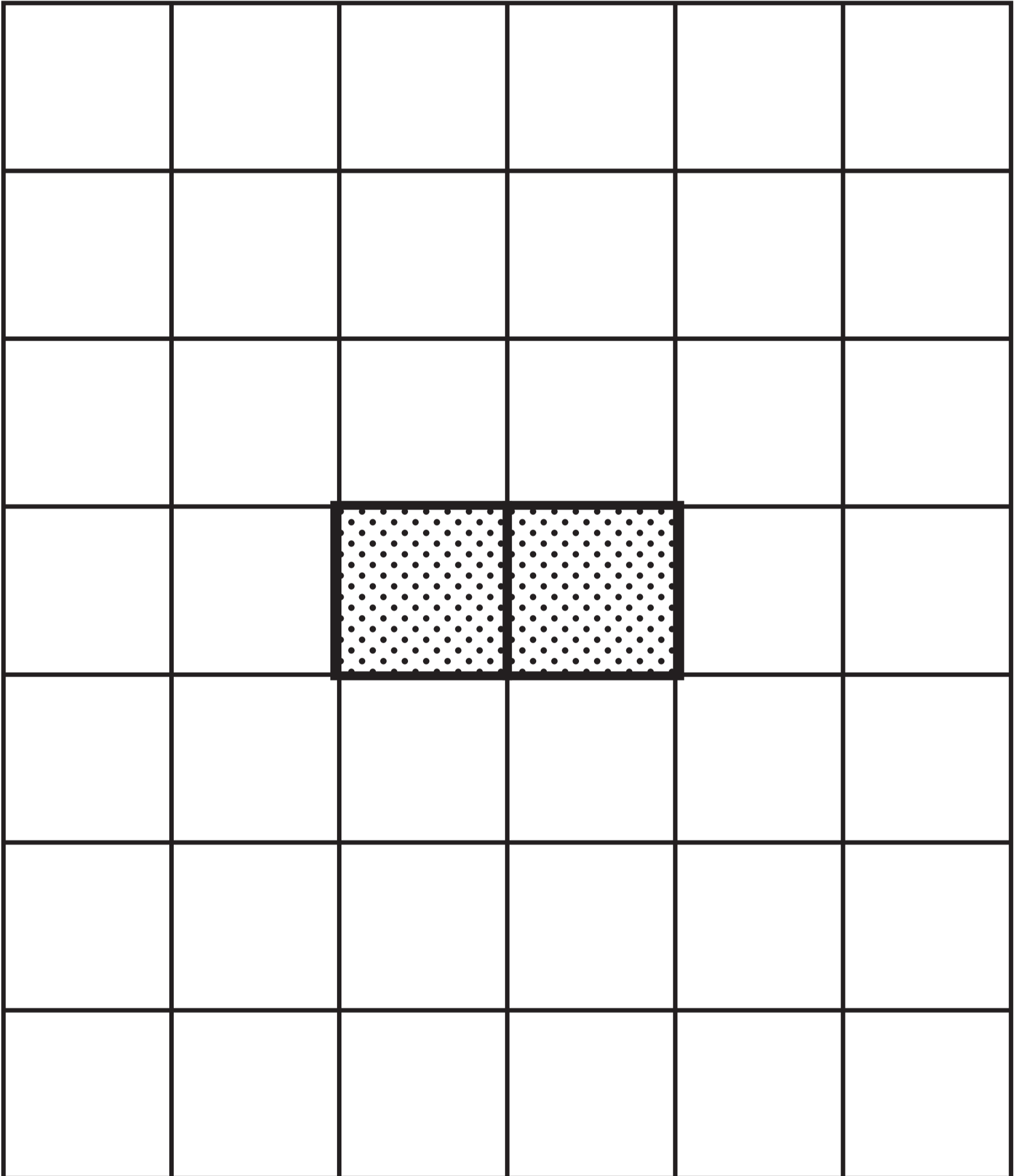
Chart

	Mon	Tues	Wed	Thur	Fri	Sat	Sun
David	1	8	2	1	7	1	5
Gwyn	1	4	1	6	2	1	12

Question 3 (a)

Type	Model	Name of the 3-D solid	Volume of candle (cm ³)
Candle A	A 		240
Candle B	B 		283
Candle C	C 	CONE	270
Candle D	D 	CUBE	120

Question 3 (c)



Question 4

Information

BUS TIMETABLE FROM ORME STATION TO OUTLET VILLAGE

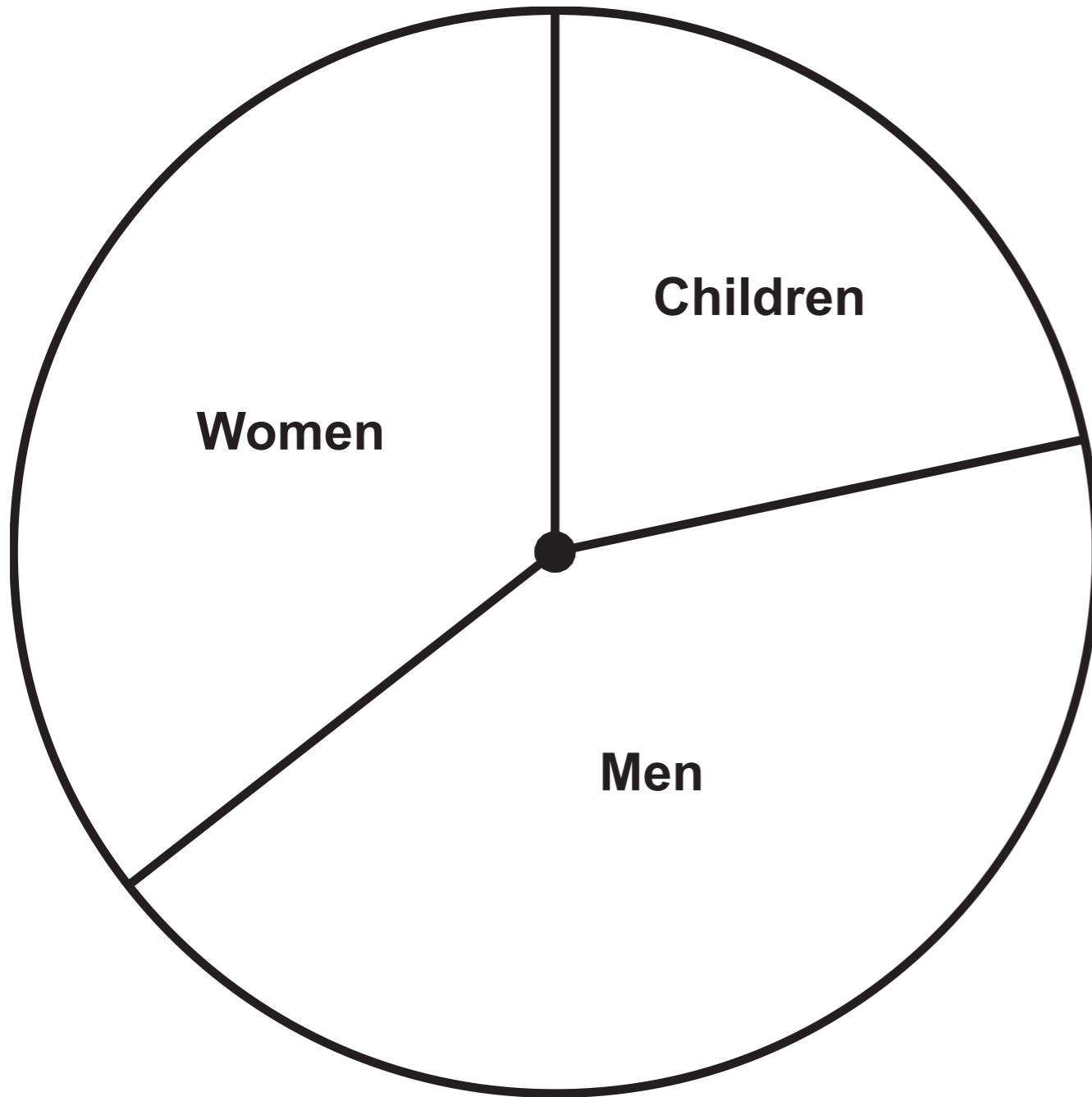
Only 55 minutes from Orme Station direct to Outlet Village

Buses leave the station

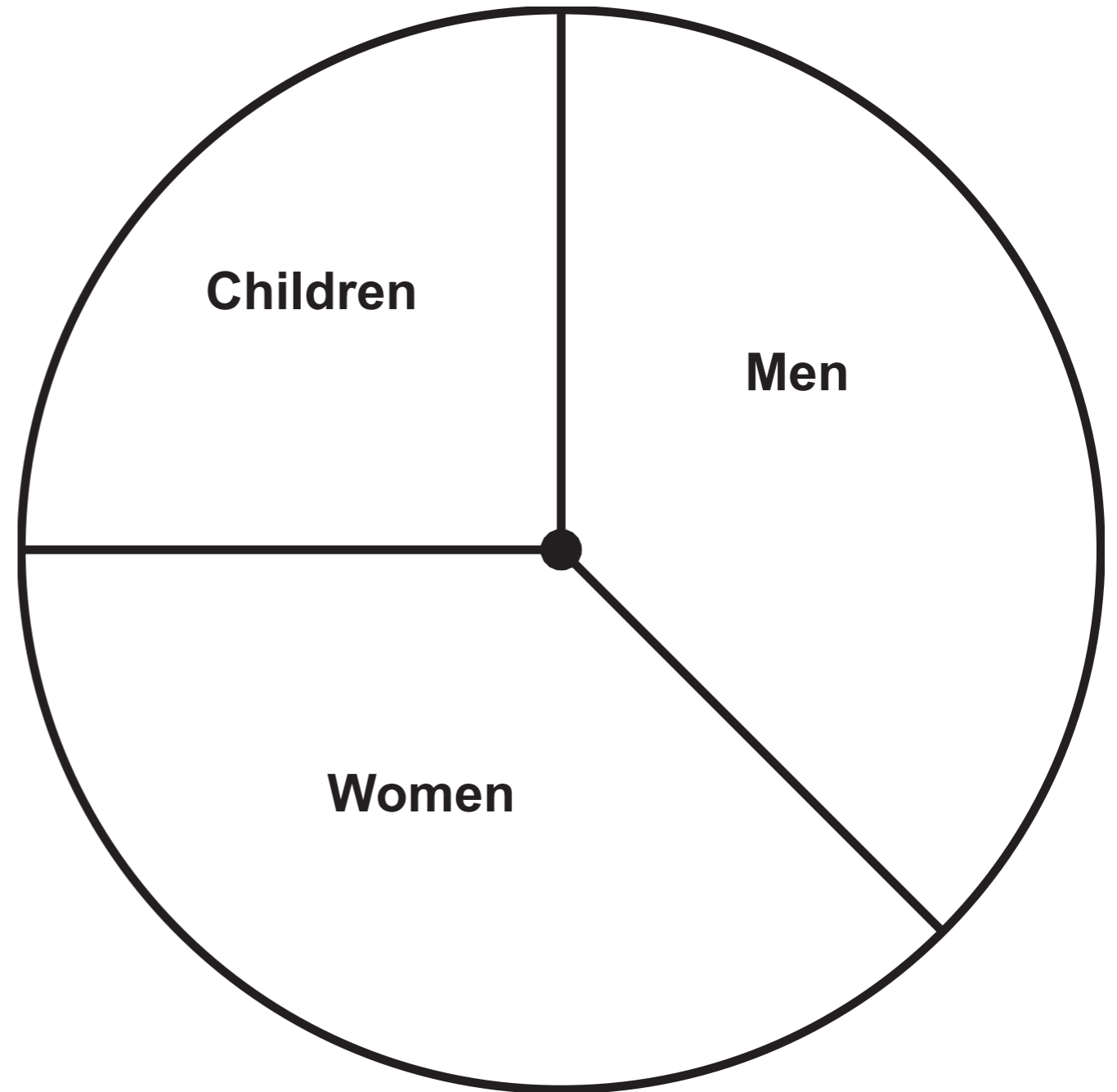
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Question 6

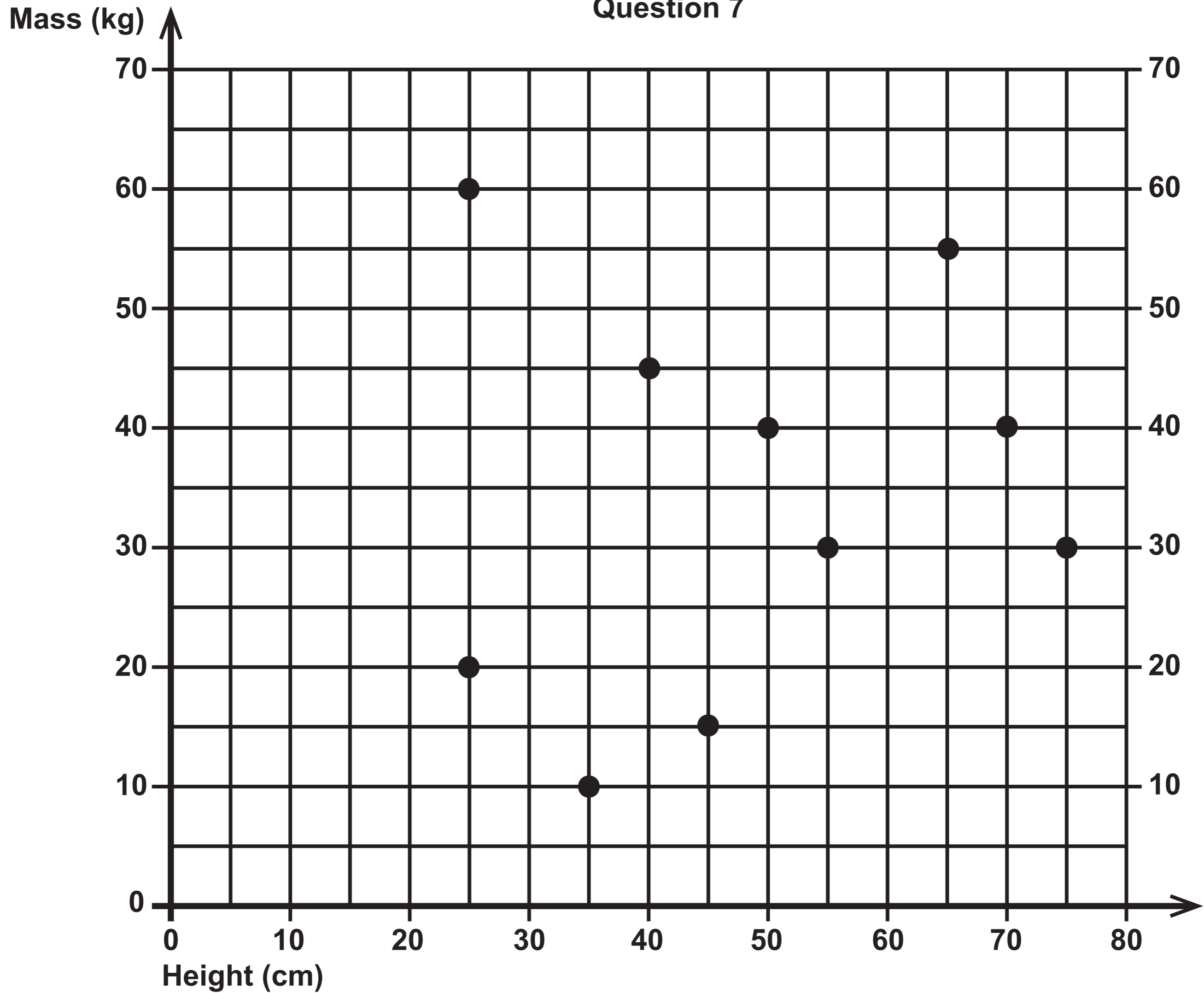
HADON'S GYM



WORKOUT PALACE



Question 7



Question 9 (a)

Information

RECIPE TO MAKE 12 SCONES

450 g self raising flour

2 teaspoons of baking powder

75 g butter

50 g caster sugar

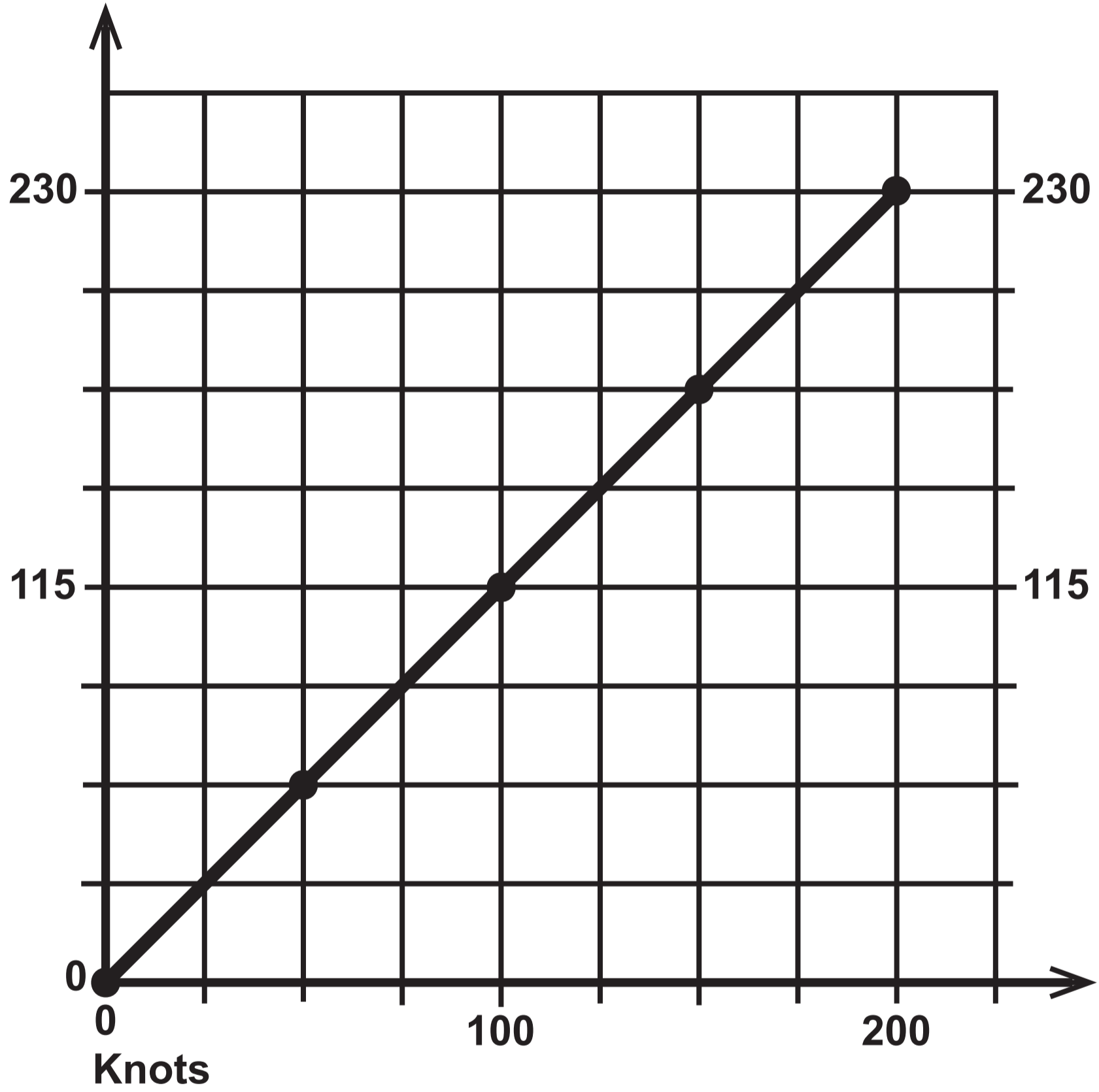
2 eggs

225 ml milk

Bake at 428°F for 10 to 15 minutes

Question 10

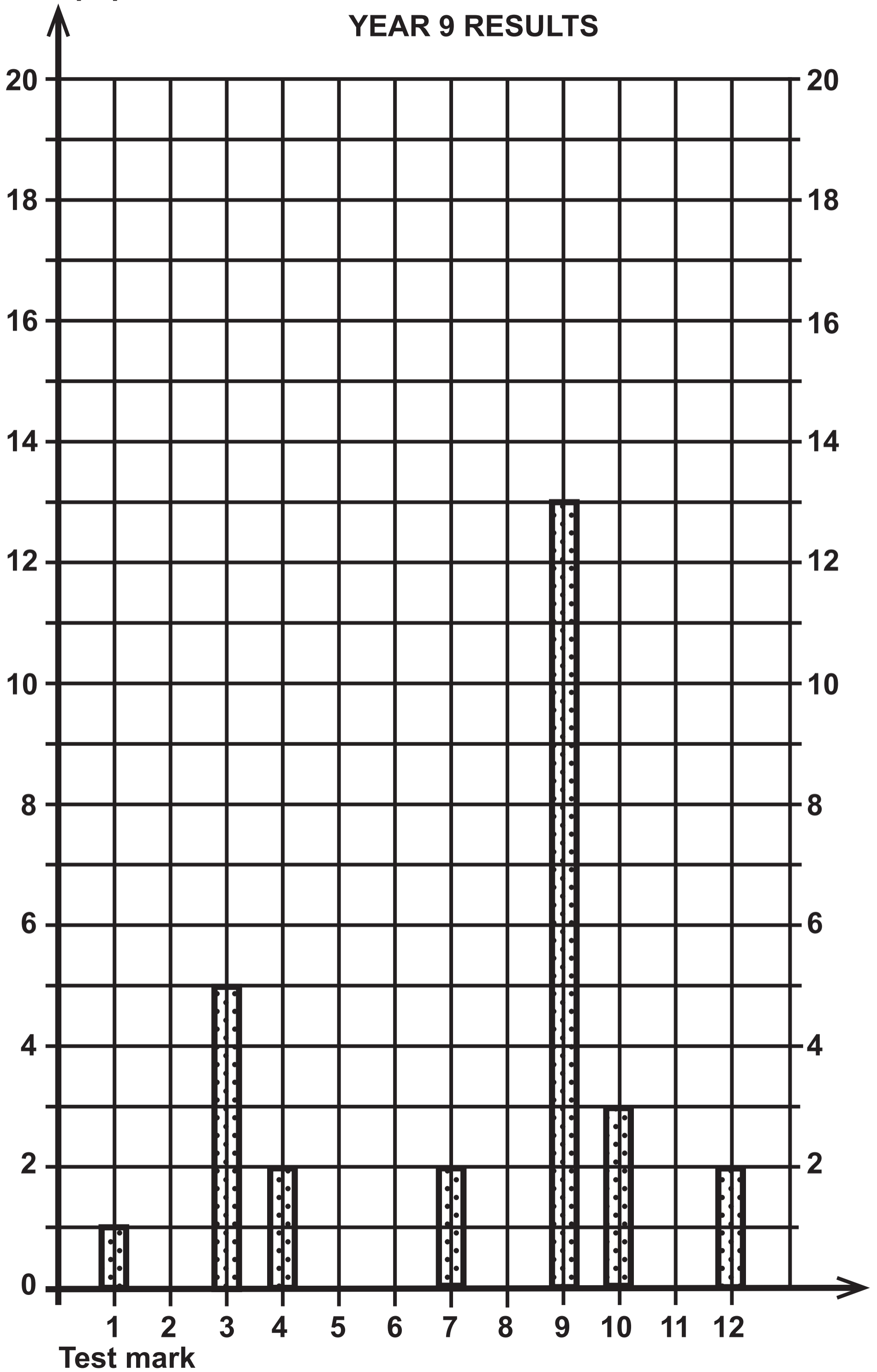
Miles per hour



Number of pupils

Question 11 (a)

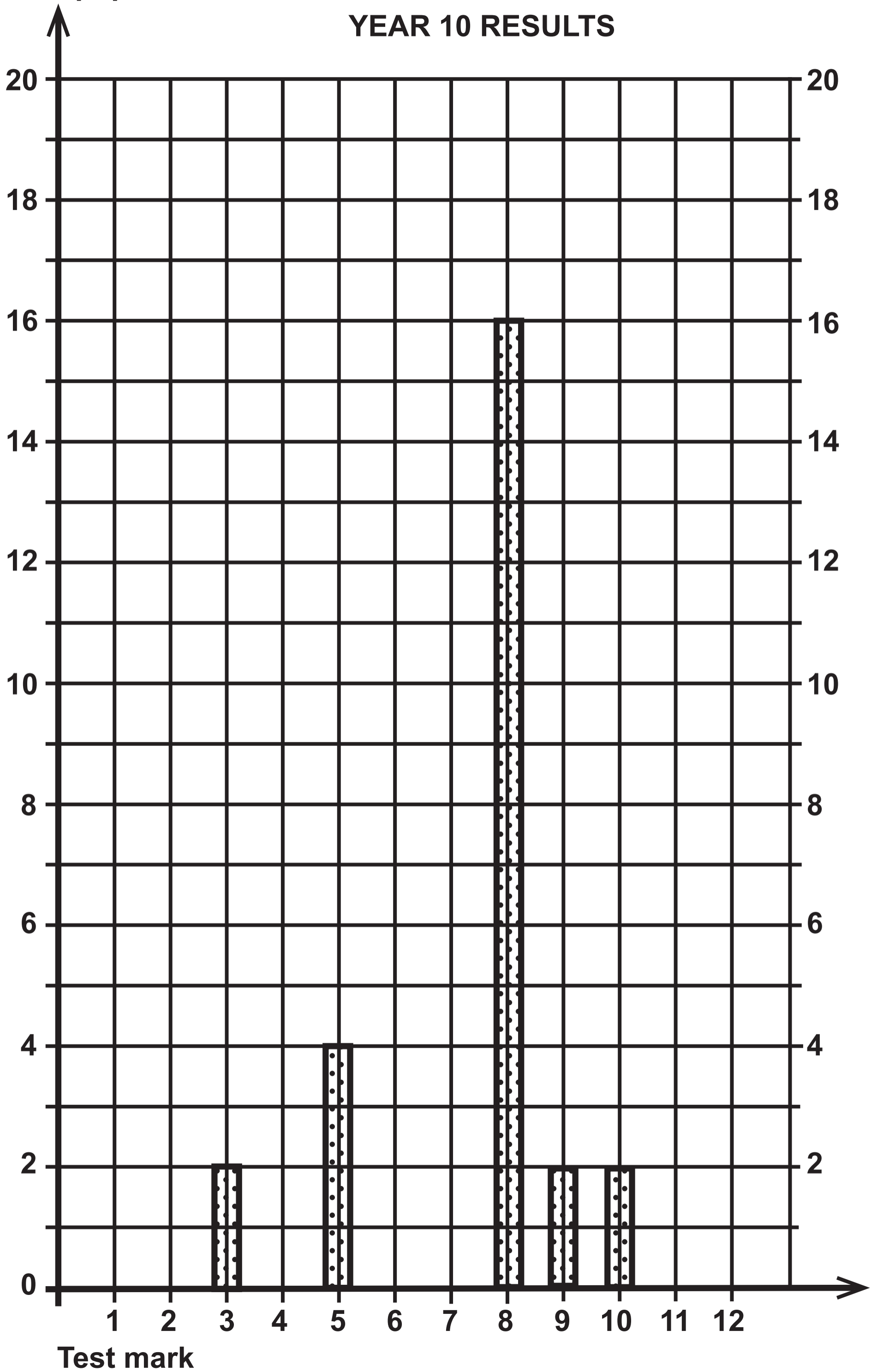
YEAR 9 RESULTS



Number of pupils

Question 11 (b)

YEAR 10 RESULTS



Question 12
Information

Type of vehicle	Average distance travelled per litre (km per litre)	Average distance travelled per day (km per day)
Van	8	256
Truck	5.5	704

GCSE – NEW

3310U20-1



MATHEMATICS – NUMERACY

UNIT 2: CALCULATOR – ALLOWED

FOUNDATION TIER

THURSDAY, 8 JUNE 2017 – MORNING

Spare Diagram Booklet

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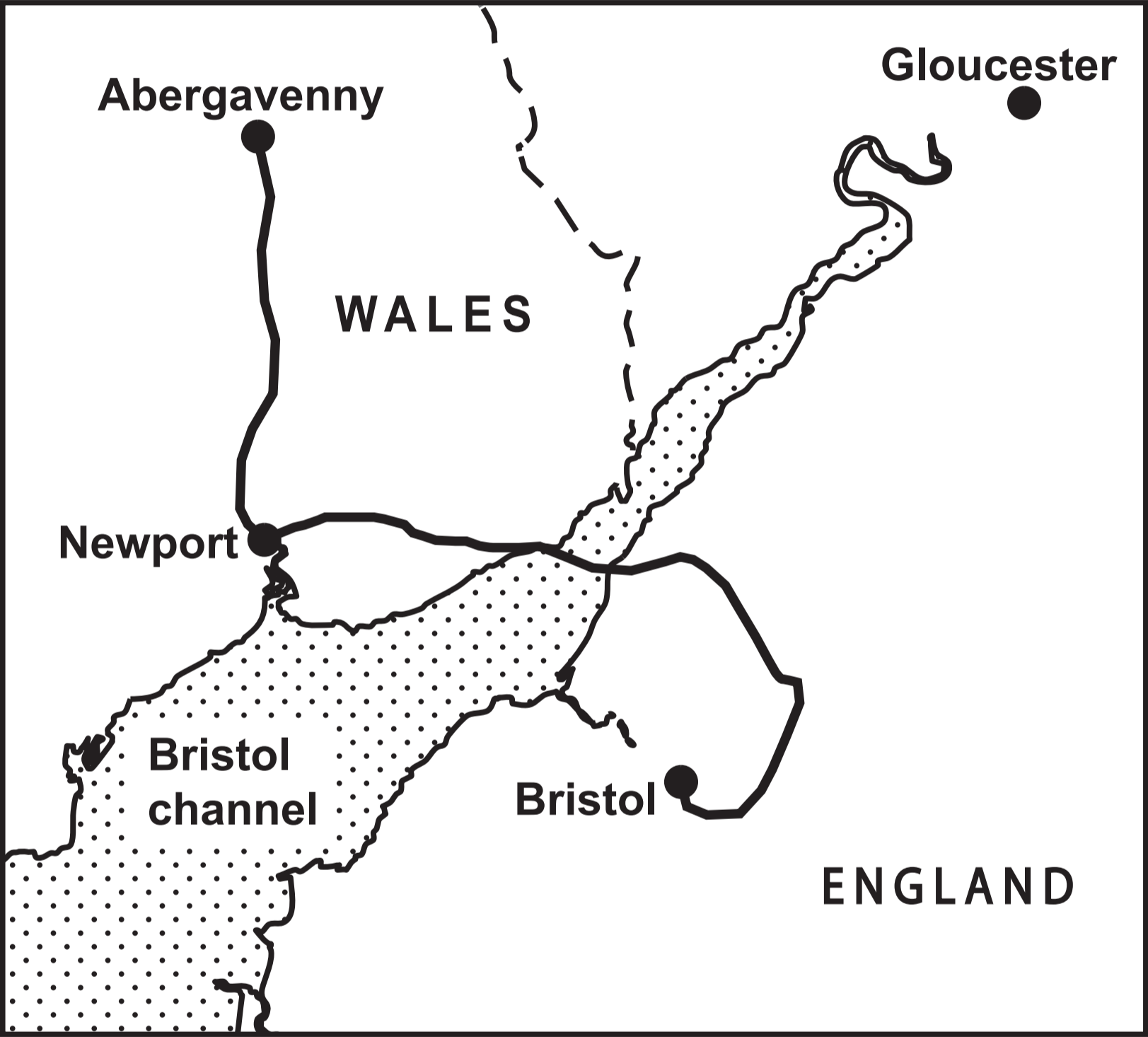
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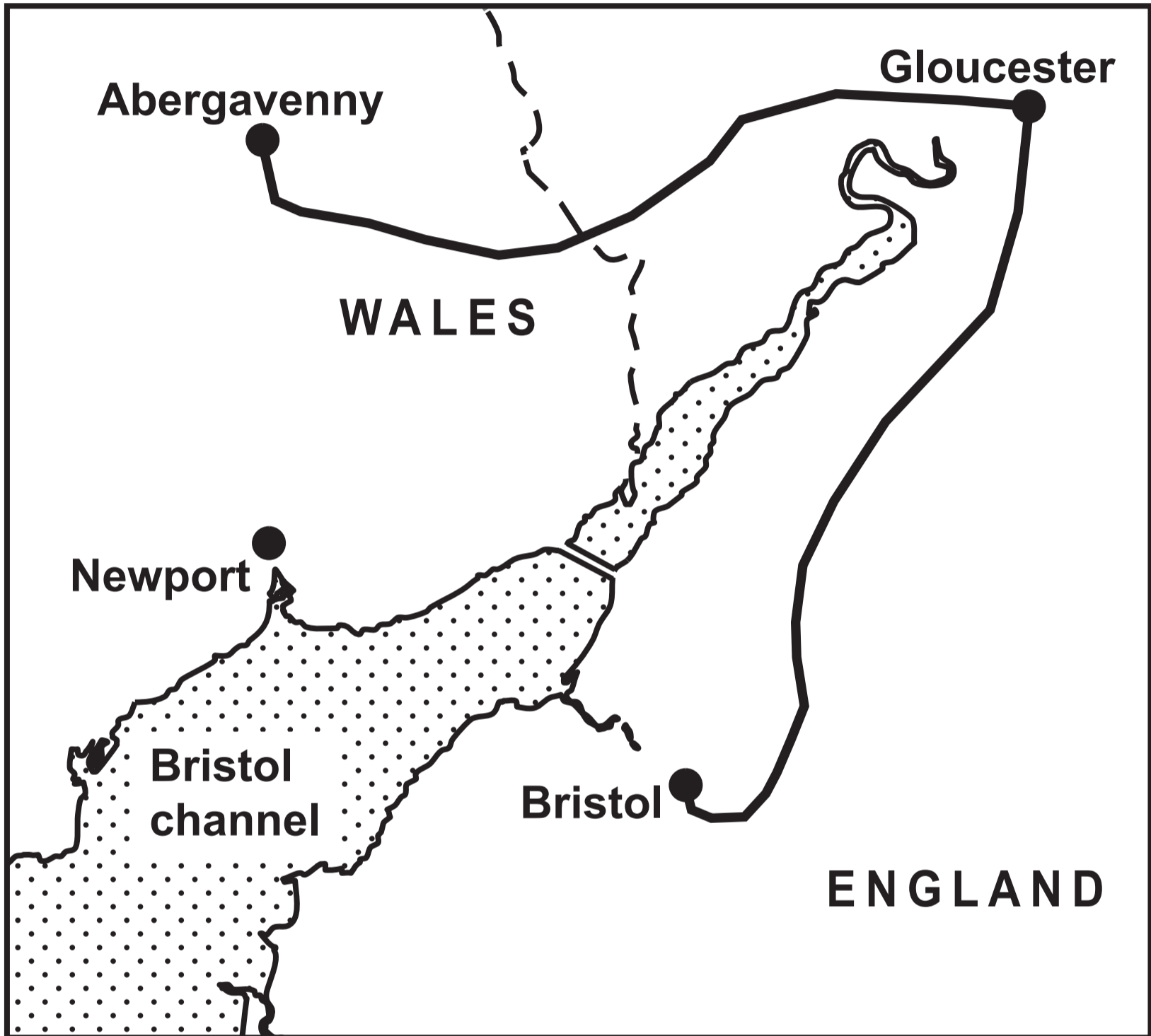
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Question 1 (c)

Diagram NOT drawn to scale

Alternative Route



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Question 2 (b)

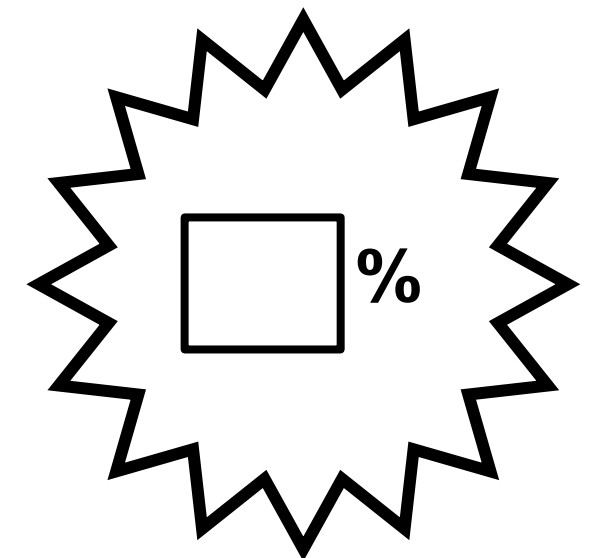
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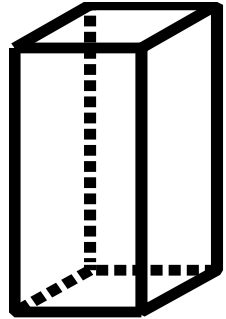
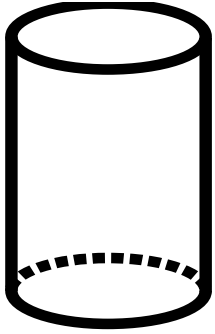
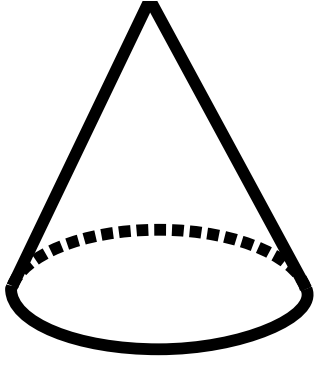
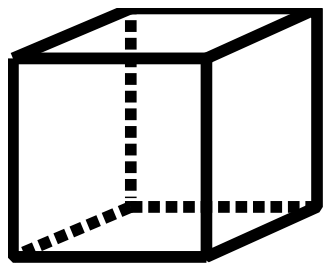
Donate

Question 2 (c)

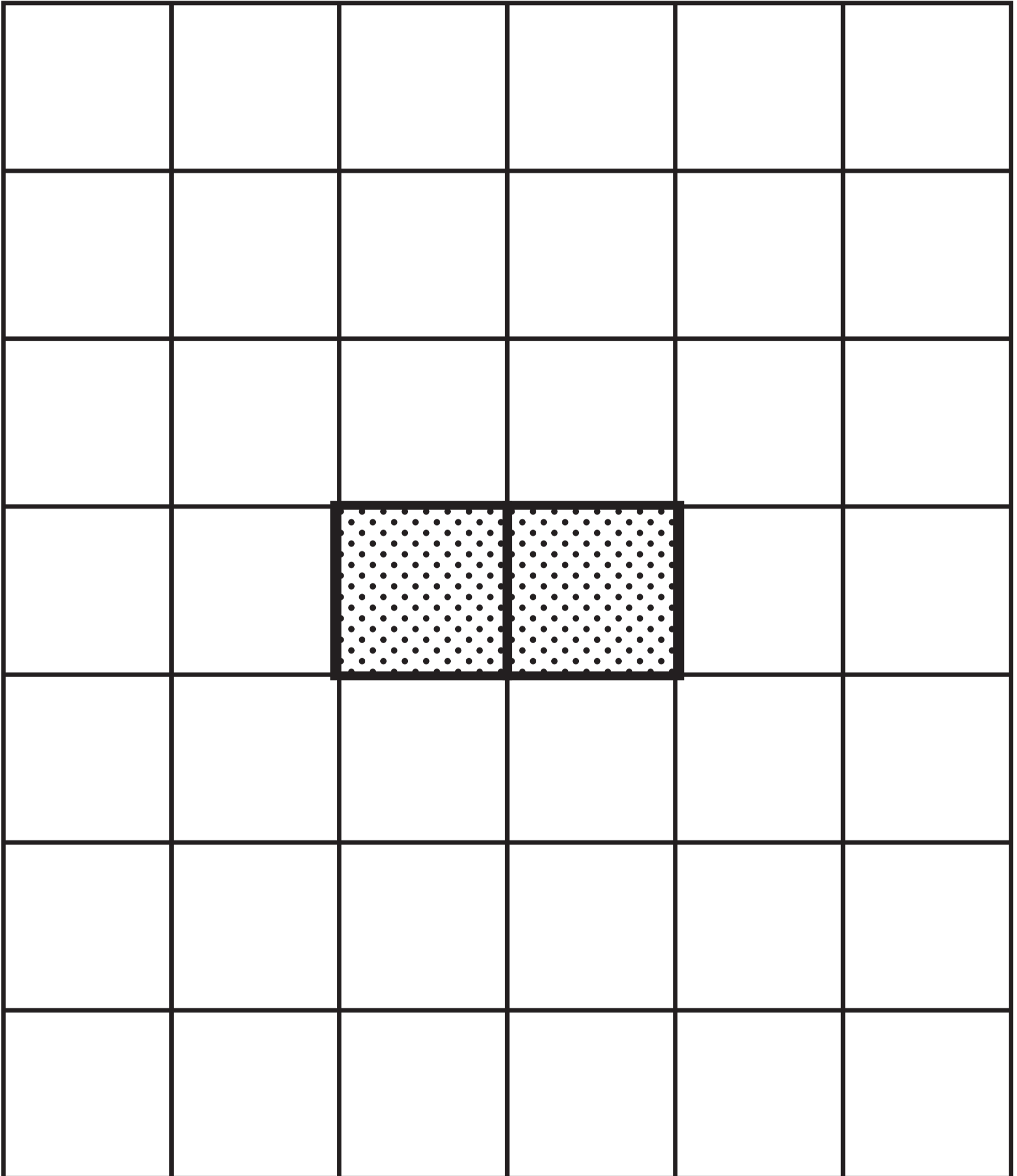
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Question 3 (c)



Question 4

Information

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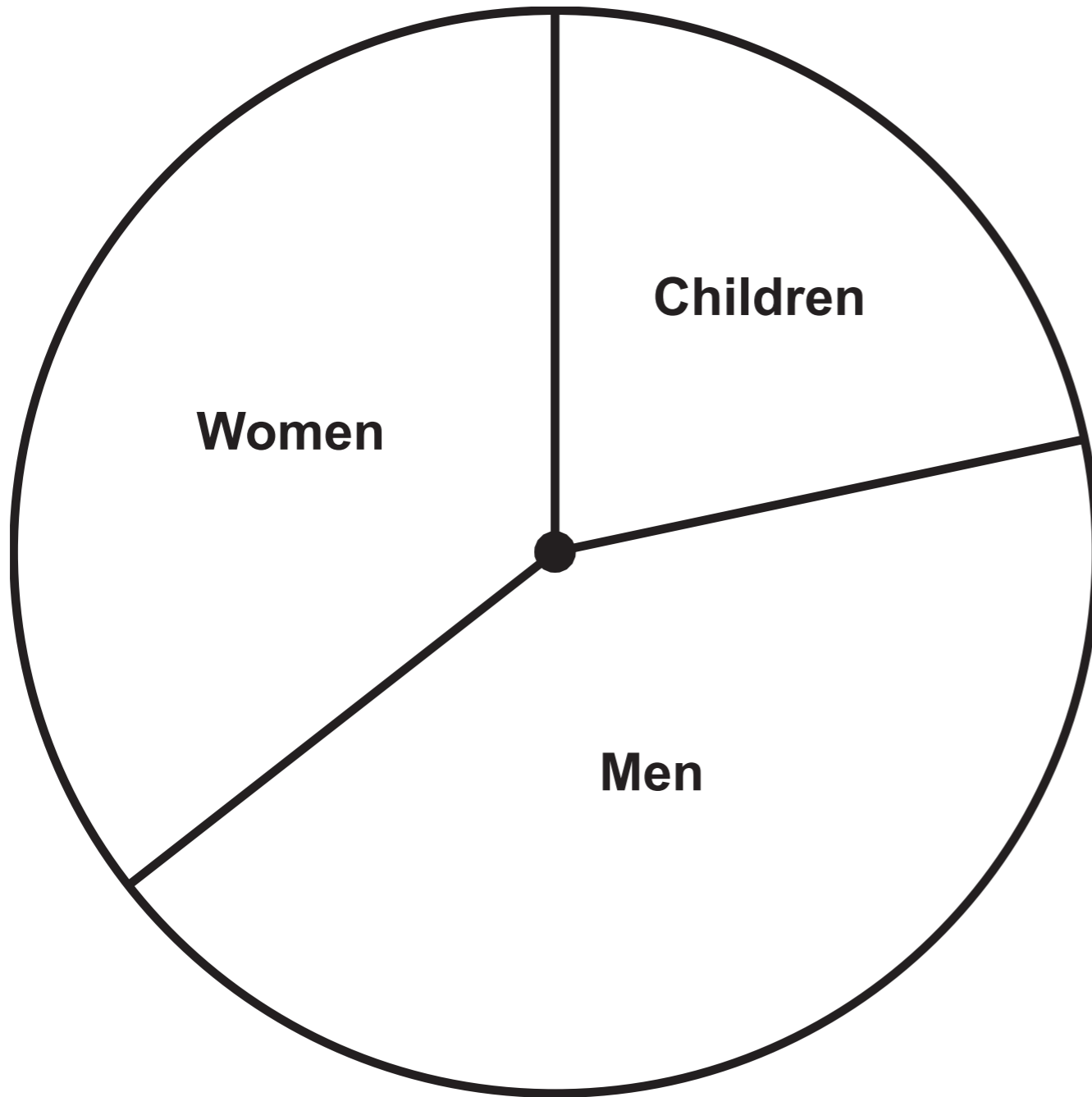
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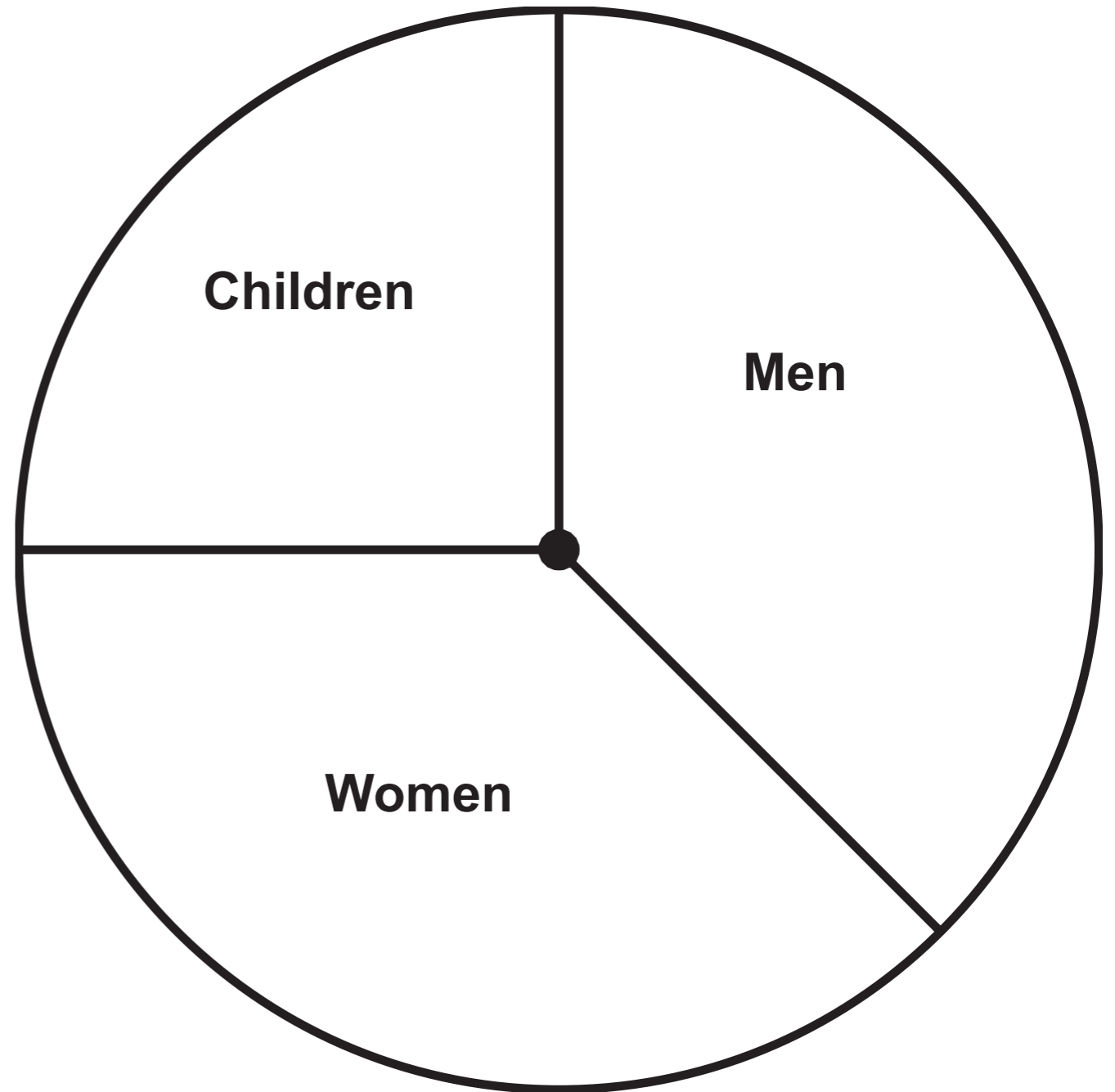
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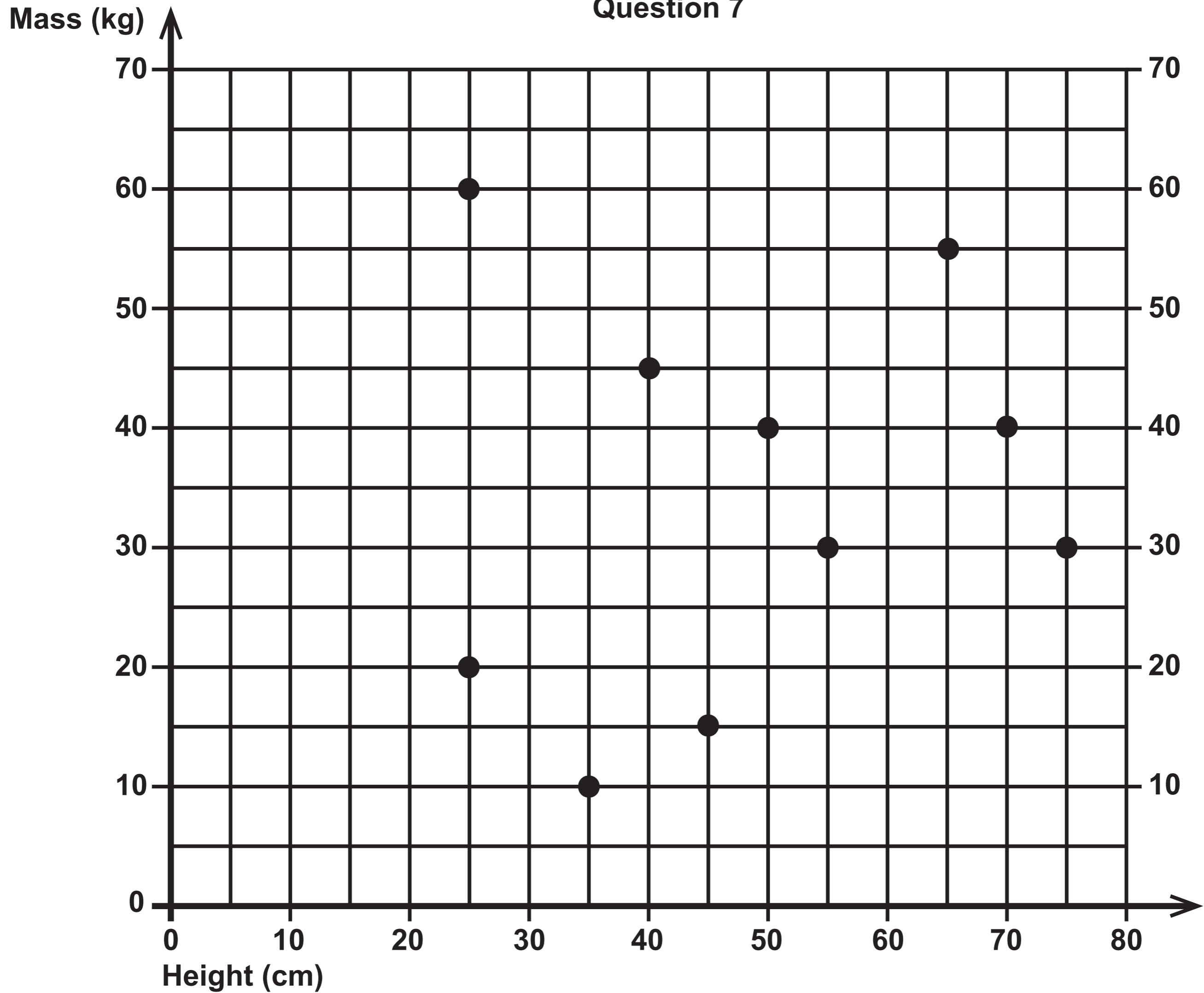
HADON'S GYM



WORKOUT PALACE



Question 7



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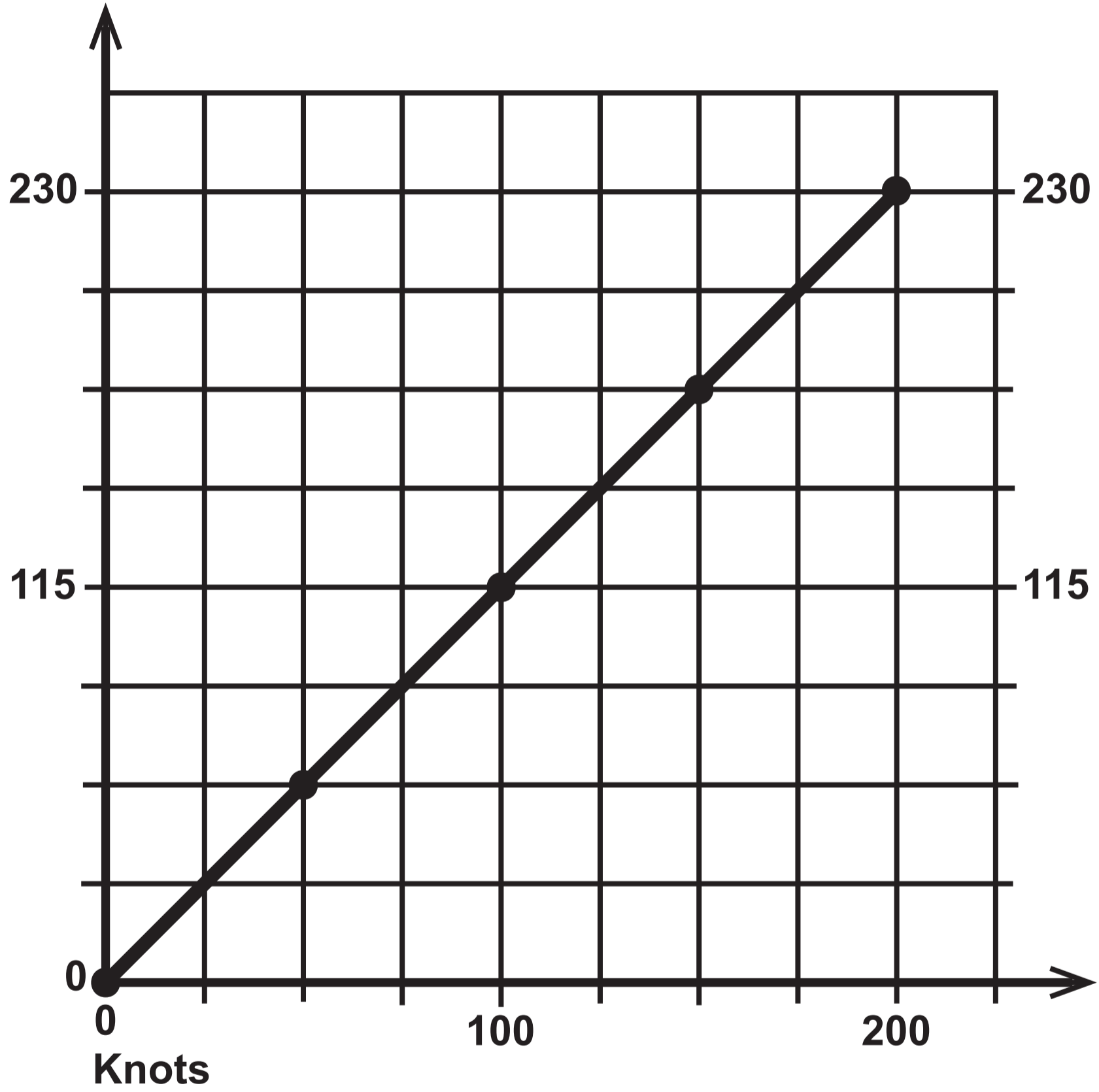
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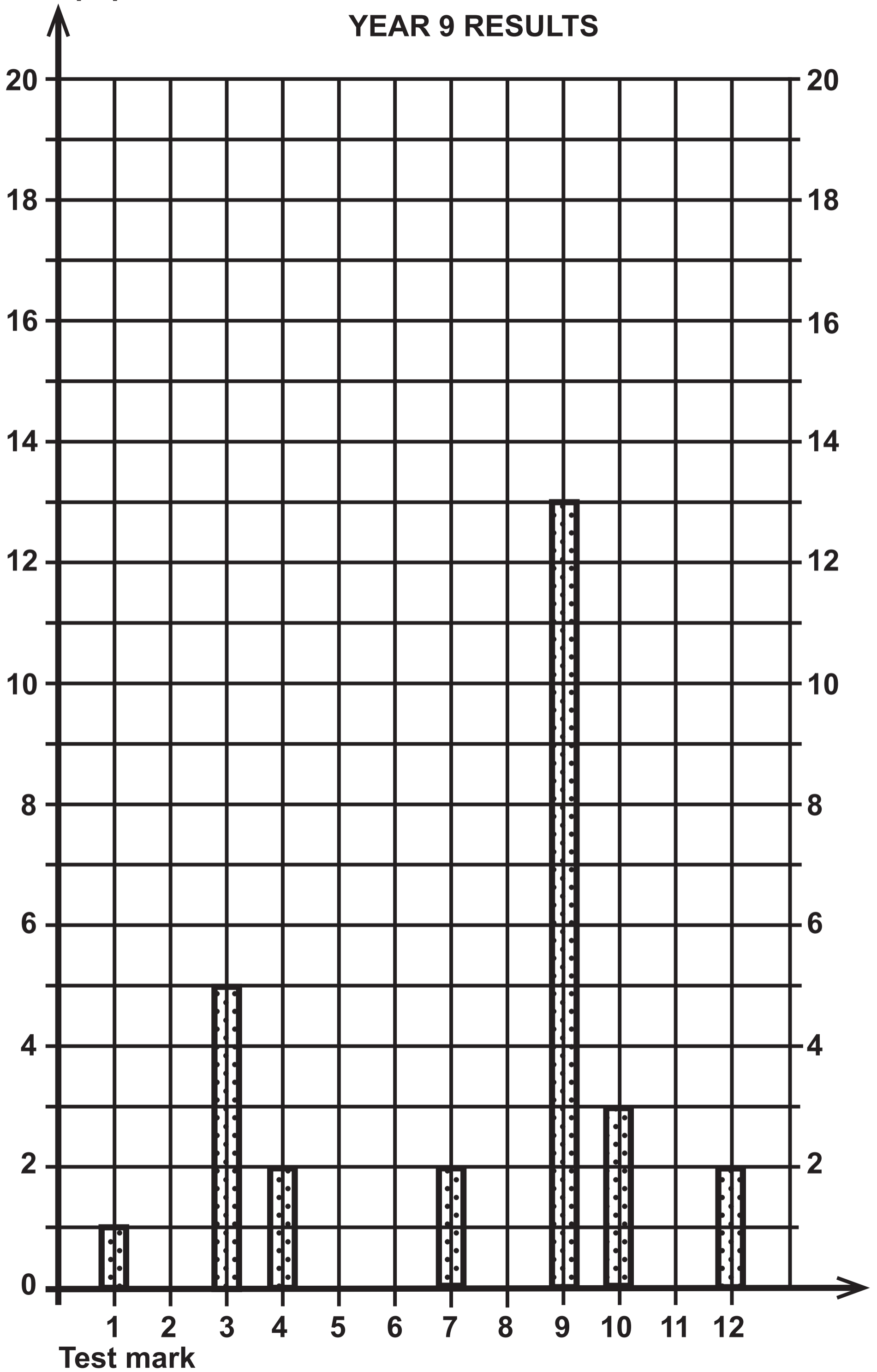
Miles per hour



Number of pupils

Question 11 (a)

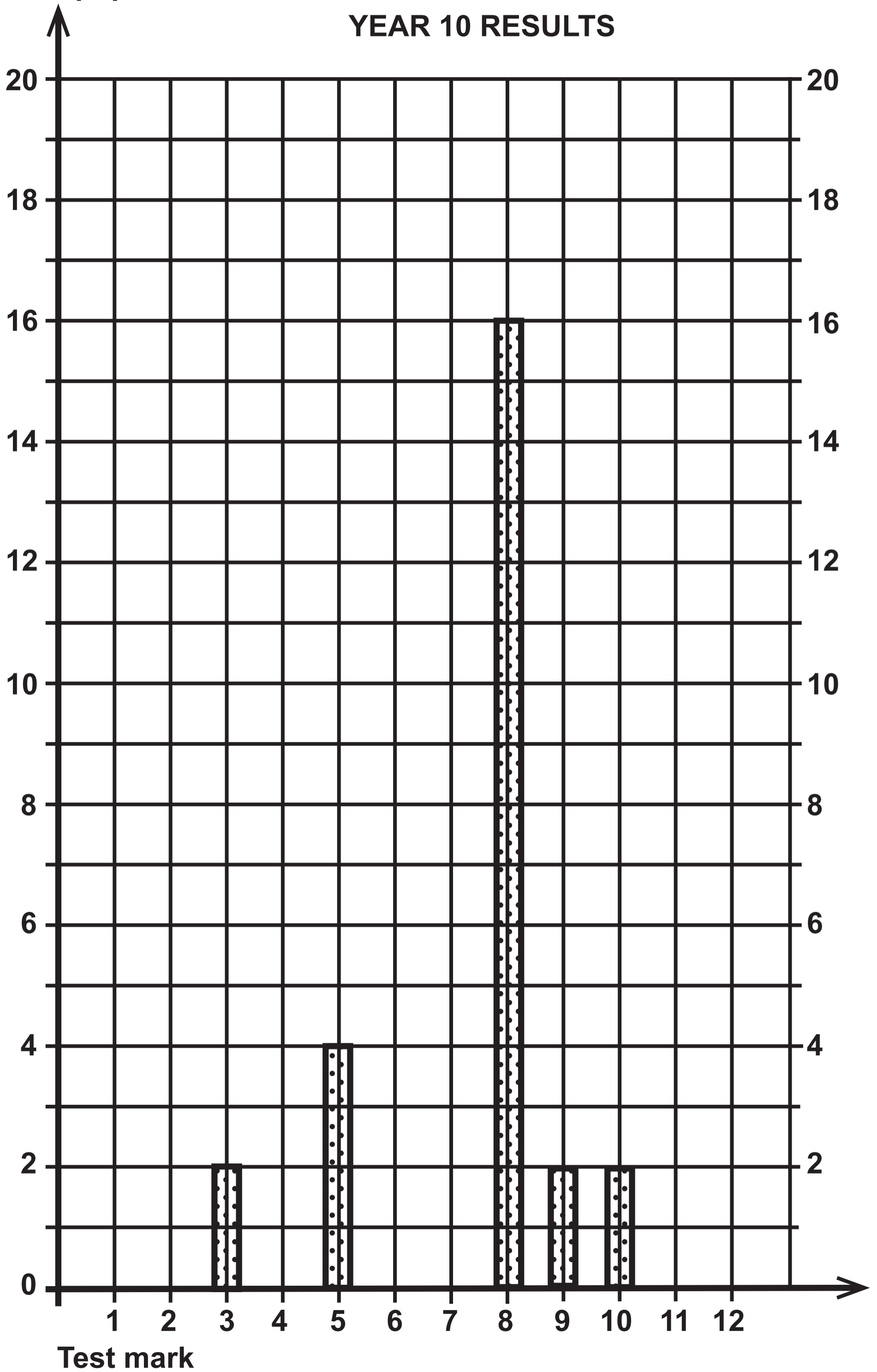
YEAR 9 RESULTS



Number of pupils

Question 11 (b)

YEAR 10 RESULTS



Question 12
Information

Type of vehicle	Average distance travelled per litre (km per litre)	Average distance travelled per day (km per day)
Van	8	256
Truck	5.5	704

**GCSE – NEW
MATHEMATICS**



and

NUMERACY

**FORMULA LIST
FOUNDATION TIER
GCSE**

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

