GCSE

3310U10-1

FRIDAY, 19 MAY 2023 – MORNING

MATHEMATICS – NUMERACY

UNIT 1: NON – CALCULATOR

FOUNDATION TIER

1 hour 30 minutes plus your additional time allowance

THE USE OF A CALCULATOR IS NOT PERMITTED IN THIS EXAMINATION

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**8**	
2.	**16**	
3.	**8**	
4.	**3**	
5.	**8**	
6.	**6**	
7.	**5**	
8.	**3**	
9.	**4**	
10.	**4**	
Total	**65**	

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.

Model for Question 2 (b).

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 the booklet.
Question numbers must be given for the work written on the additional page(s).

Take π as $3 \cdot 14$

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

1. The Principality Stadium in Cardiff hosts many events.

Since it opened in June 1999 it has welcomed, on average, 1 300 000 visitors a year.

(a) Write the number 1 300 000 in words.

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 1 continued

1. (b) Complete the following sentence.

By the end of June 2023, the stadium will have been open for

_____ years.

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 1 continued

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

The table shows some facts and figures about the Principality Stadium.

(i) How many spectators can be seated in the stadium?
Give your answer correct to the nearest 100

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 1 (c) continued

1. (c) (ii) What is the length of the pitch in CENTIMETRES?

_____

_____

_____

Length of pitch _____ cm

[1 mark]

continued on the next page . . .

Question 1 (c) continued

1. (c) (iii) What is the maximum number of litres of water that can be supplied to the stadium in ONE MINUTE?

[2 marks]

continued on the next page . . .

Question 1 (c) continued

1. (c) (iv) The following statement was made by a visitor to the stadium.

"As 5 miles is about 8 kilometres, the total length of mains electric cable in the stadium is nearly 15 miles."

Is the visitor's statement correct?

Yes ☐ **No** ☐

You must show working to support your answer.

_____

_____

_____

_____

_____

[2 marks]

2. Mr Evans owns a gift shop.

(a) He bought 40 boxes of chocolates from the internet to sell in his gift shop.

INTERNET PRICE
£5 per box
Orders over £100 get 25% off the total cost

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

How much did Mr Evans pay for the 40 boxes of chocolates?
You must show all your working.

[3 marks + 2 marks OCW]

continued on the next page . . .

Question 2 (a) continued

2. (a) (ii) Mr Evans sold all 40 boxes of chocolates in his shop.

Buy one box of chocolates for £8

SPECIAL OFFER:
Buy 2 boxes of chocolates for £13

20 boxes of chocolates were sold for £8 each.

The remaining boxes of chocolates were sold using the special offer.

How much PROFIT did Mr Evans make?

You must show all your working.

[5 marks]

continued on the next page . . .

Question 2 continued

2. (b) Mr Evans wants to plant flowers outside the shop.

He uses a wooden planter.

It is in the shape of a cuboid WITHOUT a lid.

Ask for the model for Question 2 (b).

The model is NOT made to scale.

The model represents the wooden planter, with its dimensions shown.

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

The diagrams are NOT drawn to scale.

Mr Evans has 8 wooden panels.

These are shown.

continued on the next page . . .

Question 2 (b) continued

From the list below, circle the 5 panels that Mr Evans will need to use to make the planter.

Panel A	**Panel B**
Panel C	**Panel D**
Panel E	**Panel F**
Panel G	**Panel H**

[3 marks]

continued on the next page . . .

Question 2 continued

2. (c) Look at the diagram for Question 2 (c) in the separate Diagram Booklet.

Mr Evans designs a poster to place in his shop window. The poster is to advertise a local flower show.
The flower used in the poster is shown on the square grid.
Each square on the grid represents $4\ cm^2$ on the poster.

Estimate the area of the flower on the poster.

Area of the flower on the poster _____ **cm^2**

[3 marks]

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

The table shows the number of passengers flying from Cardiff Airport from May to September in 2017 and 2018.

(a) In which month and year did the greatest number of passengers fly from Cardiff Airport?

Month _____

Year _____

[1 mark]

continued on the next page . . .

Question 3 continued

3. (b) Calculate the difference between the number of passengers flying from Cardiff Airport in May 2018 and those in May 2017.

Give your answer to the nearest 1000

You must show all your working.

[2 marks]

continued on the next page . . .

Question 3 continued

3. (c) Compare the information for 2017 with the information for 2018.

In which 2 months has the number of passengers increased by more than 20 000 ?

_____

_____

_____

_____

_____

_____

Months:

_____ **and** _____

[2 marks]

continued on the next page . . .

Question 3 continued

3. (d) Teleri has carried out a survey to find out which holiday destination is the most popular out of Tenerife, Majorca, Corfu and Benidorm.

Design a tally chart in the space below that Teleri could have used to collect her data and to show her results.

[3 marks]

4. Katelyn is buying some medicine.

She has the following information:

Small bottle of medicine **30 ml for £1.20**
Medium bottle of medicine **40 ml for £1.56**
Large bottle of medicine **50 ml for £2.25**

Which size bottle of medicine offers the best value for money?

You must show all your working.

[3 marks]

5. Look at the diagram for Question 5 in the separate Diagram Booklet.

A survey was carried out in the U.S.A.

743 teenagers were interviewed.

They were asked what type of information they posted on social media.

The results were displayed on the internet, as shown in the diagram.

(a) How many times bigger is the percentage of the teenagers who posted about their family than the percentage who posted about their religious beliefs?

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 5 continued

5. (b) What fraction of these teenagers posted about their emotions and feelings?
Give your answer in its simplest form.

_____

_____

_____

_____

_____

[1 mark]

(c) Dewi looks at the type of information posted by these teenagers.
What is the modal type of information?

The modal type of information is

_____

[1 mark]

continued on the next page . . .

Question 5 continued

5. (d) What information would have been needed in the original data so that the following hypothesis could be tested?

> **In the U.S.A., teenage girls post about family more often than teenage boys.**

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 5 continued

5. (e) How many of these 743 teenagers posted about their religious beliefs? You must show all your working.

[3 marks]

continued on the next page . . .

Question 5 continued

5. (f) Lottie is confused by the data in the diagram.

She says,

“This diagram can’t be right, as all the bars don’t add up to 100%”

The diagram is correct.
Explain why the bars do not add up to 100%

[1 mark]

6. HydraDwr is a bathroom and plumbing shop.

(a) HydraDwr sells baths and sets of taps.

One day, 80 customers bought:

- **one bath and one set of taps, or**
- **one bath, or**
- **one set of taps.**

Look at the diagram for Question 6 (a) in the separate Diagram Booklet.
The diagram is a Venn diagram.
The Venn diagram shows the number of customers who bought these items.

(i) How many baths did these customers buy?

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 6 (a) continued

6. (a) (ii) A bath costs £180

A set of taps cost £60

Calculate the total cost of the baths and sets of taps bought by these 80 customers.

[3 marks]

continued on the next page . . .

Question 6 (b) continued

6. (b) HydraDwr also sells pipes and couplings to join the pipes.

(i) Look at the diagram for Question 6 (b) (i) in the separate Diagram Booklet.

3 pipes are joined together using 2 couplings, as shown in the diagram.

How many couplings are needed to join 6 pipes?

_____

_____

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 6 (b) continued

6. (b) (ii) An equation is used to work out the number of couplings needed to join pipes.

***P* = the number of pipes**

***C* = the number of couplings**

Which of the following equations can be used to calculate the number of couplings needed?
Circle your answer.

$C = 2P$	$C = P + 1$	$C = P - 1$
$C + P = 1$	$C = P$	

_____

_____

_____

[1 mark]

7. **Lynette is ordering a T – shirt.**

She wants her initial, L, printed on the T – shirt.

Look at the diagram for Question 7
in the separate Diagram Booklet.
The diagram is NOT drawn to scale.
The diagram shows Lynette's design.

Details of Lynette's design are given below.

- **The height is twice the width.**
- **The height is 10 cm.**

The cost of printing is 50p for an area of 2 cm^2

How much will it cost Lynette to have her design printed on a T – shirt?

[5 marks]

8. A survey was carried out to find how often primary school children play board games.

Look at the questionnaire for Question 8 in the separate Diagram Booklet.
This questionnaire was designed for primary school children to answer.
Two questions were asked.

(a) For each question, give ONE reason why it is NOT suitable.

Q1. _____

_____

_____

Q2. _____

_____

_____

[2 marks]

continued on the next page . . .

Question 8 continued

8. (b) The survey was carried out by leaving copies of the questionnaire in the local supermarket.

Give ONE criticism of how the survey was carried out.

_____

_____

_____

_____

_____

[1 mark]

9. (a) Hesta and Walt hire a canal boat in Llangollen for their holiday.

Look at the diagram for Question 9 (a) in the separate Diagram Booklet.
The diagram is a travel graph.

Hesta records their distance along the canal from Llangollen between 8 a.m. and 4 p.m.
This is shown in the travel graph.

(i) During the day, Hesta and Walt made stops by the side of the canal. At what time did Hesta and Walt first stop at the side of the canal?

_____

_____

[1 mark]

continued on the next page . . .

Question 9 (a) continued

9. (a) (ii) Between which two times were Hesta and Walt travelling the fastest? Circle your answer.

08:00 and 08:30
08:30 and 09:00
10:00 and 11:00
12:30 and 14:00
15:00 and 16:00

[1 mark]

continued on the next page . . .

Question 9 (a) continued

9. (a) (iii) What is the total distance Hesta and Walt travelled in the boat between 8 a.m. and 4 p.m.?

Circle your answer.

3 km	9 km	12 km	15 km	18 km

[1 mark]

continued on the next page . . .

Question 9 continued

9. (b) Look at the diagram for Question 9 (b) in the separate Diagram Booklet.
The diagram shows a map.

Hesta and Walt visit Chirk Castle.

Which is the best estimate for the bearing of Llangollen from Chirk Castle?
Circle your answer.

060°	240°	120°	340°	300°

[1 mark]

10. Look at the diagram for Question 10 in the separate Diagram Booklet.
The diagram is a scatter diagram.

The scatter diagram shows the length and width of some television remote handsets.

(a) Two of the remotes have the same width. Write down the width and lengths of these remotes.

Width _____ cm

Lengths are _____ cm

and _____ cm.

[2 marks]

continued on the next page . . .

Question 10 continued

10. (b) How is it best to describe the correlation seen in this scatter diagram?

_____

_____

[1 mark]

(c) Draw a line of best fit on the scatter diagram.

[1 mark]

END OF PAPER

TOTAL 65 MARKS

Question number	Additional pages, if required. Write the question number(s) in the left - hand margin.

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MATHEMATICS – NUMERACY

UNIT 1: NON – CALCULATOR

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 (c)

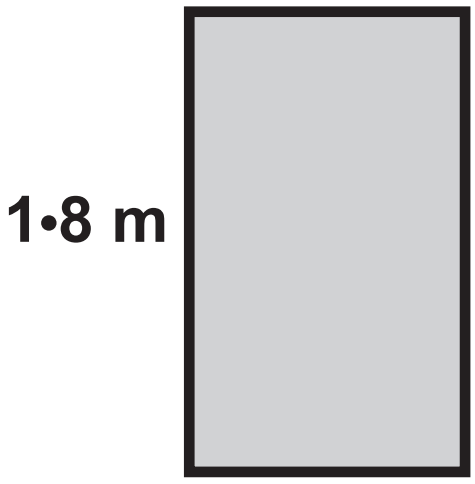
Table

Seating capacity	**73 931 spectators**
Length of pitch	**120 m**
Width of pitch	**79 m**
Area of play	**9480 m^2**
Number of floodlights	**110**
Total length of mains electric cable	**18 km**
Maximum rate of the water supply to the stadium	**90 litres / second**

Question 2 (b)

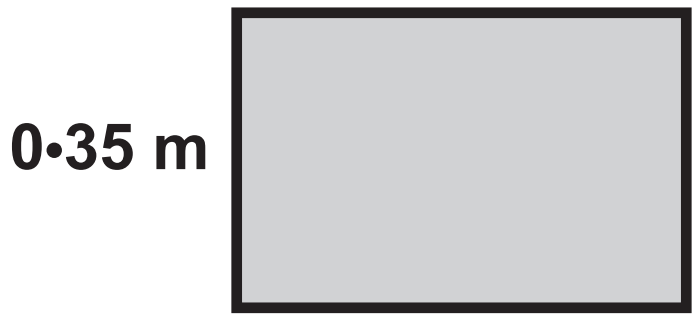
Diagrams NOT drawn to scale

Panel A

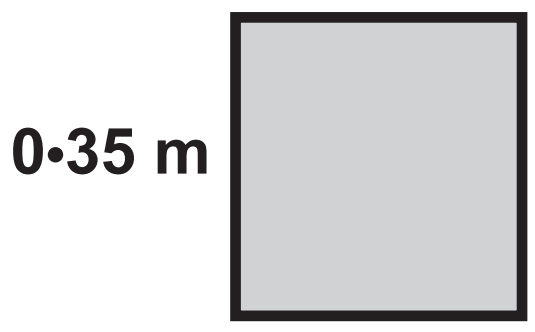


Panel B

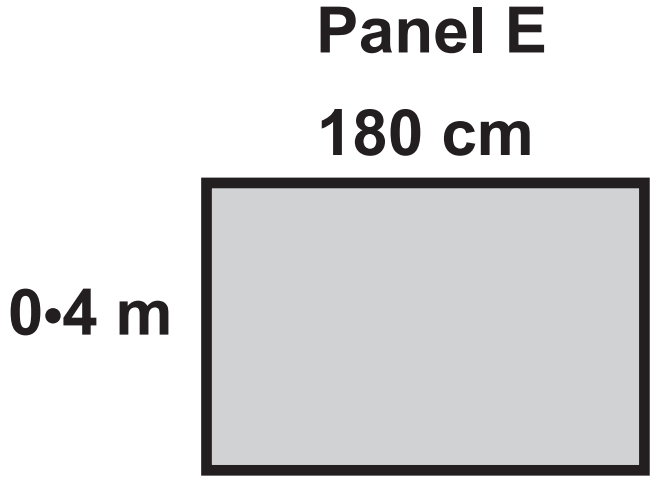
Panel C



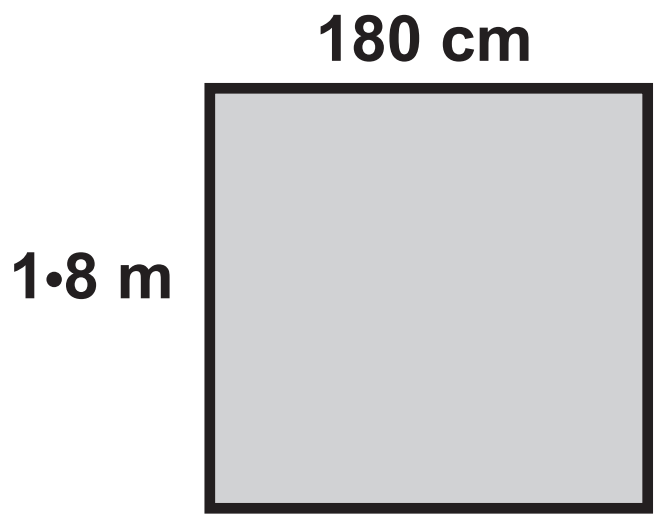
Panel D



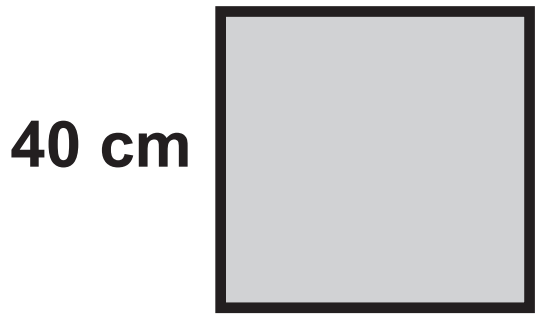
Panel E



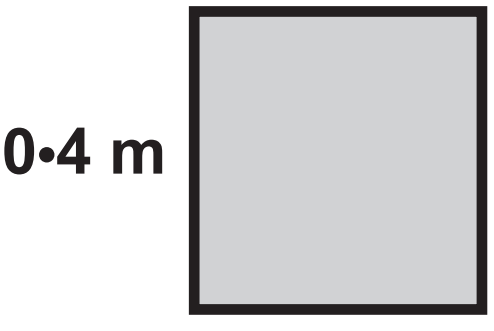
Panel F



Panel G

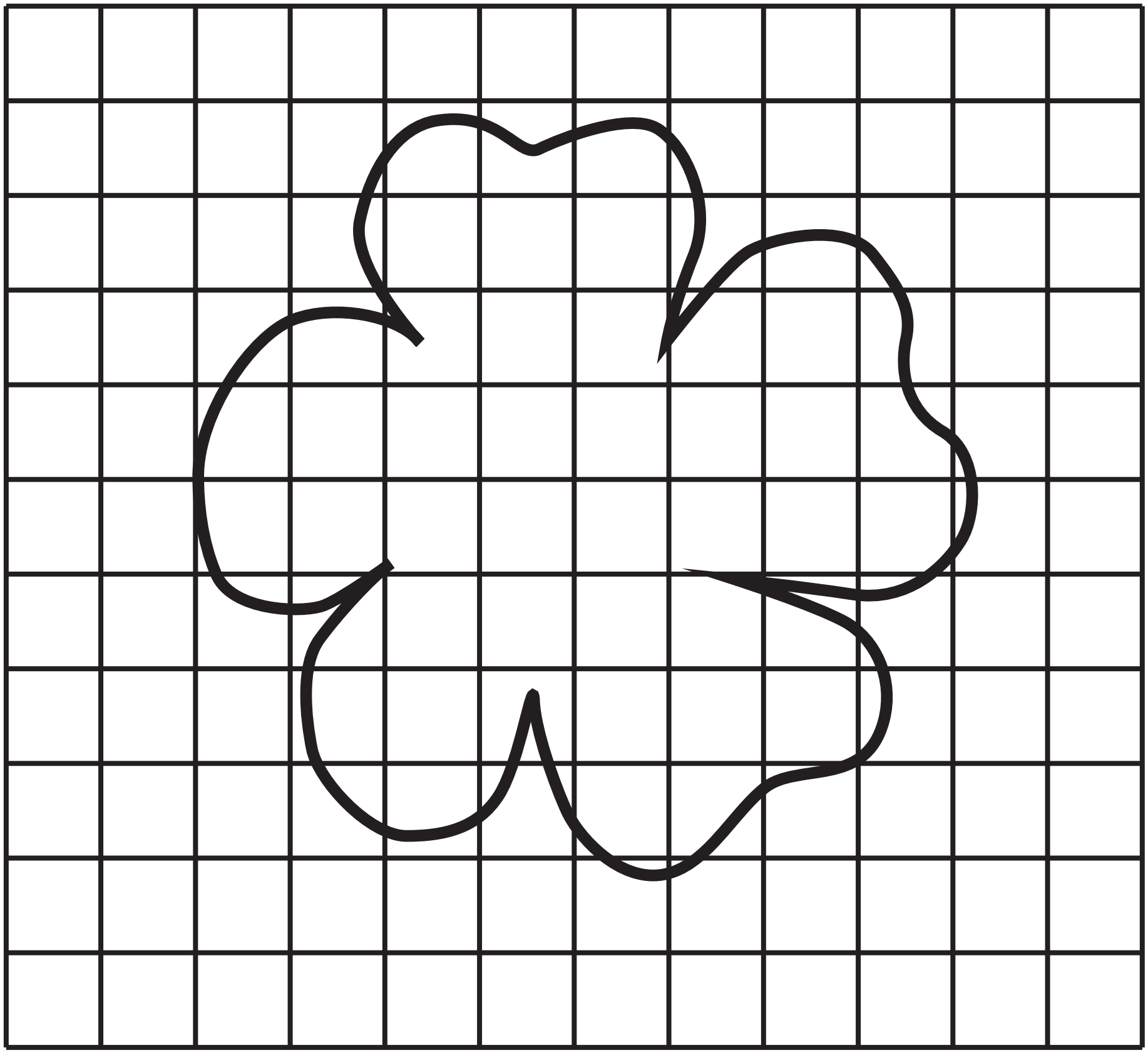


Panel H



Question 2 (c)

Each square on the grid represents $4\ cm^2$ on the poster.



Question 3

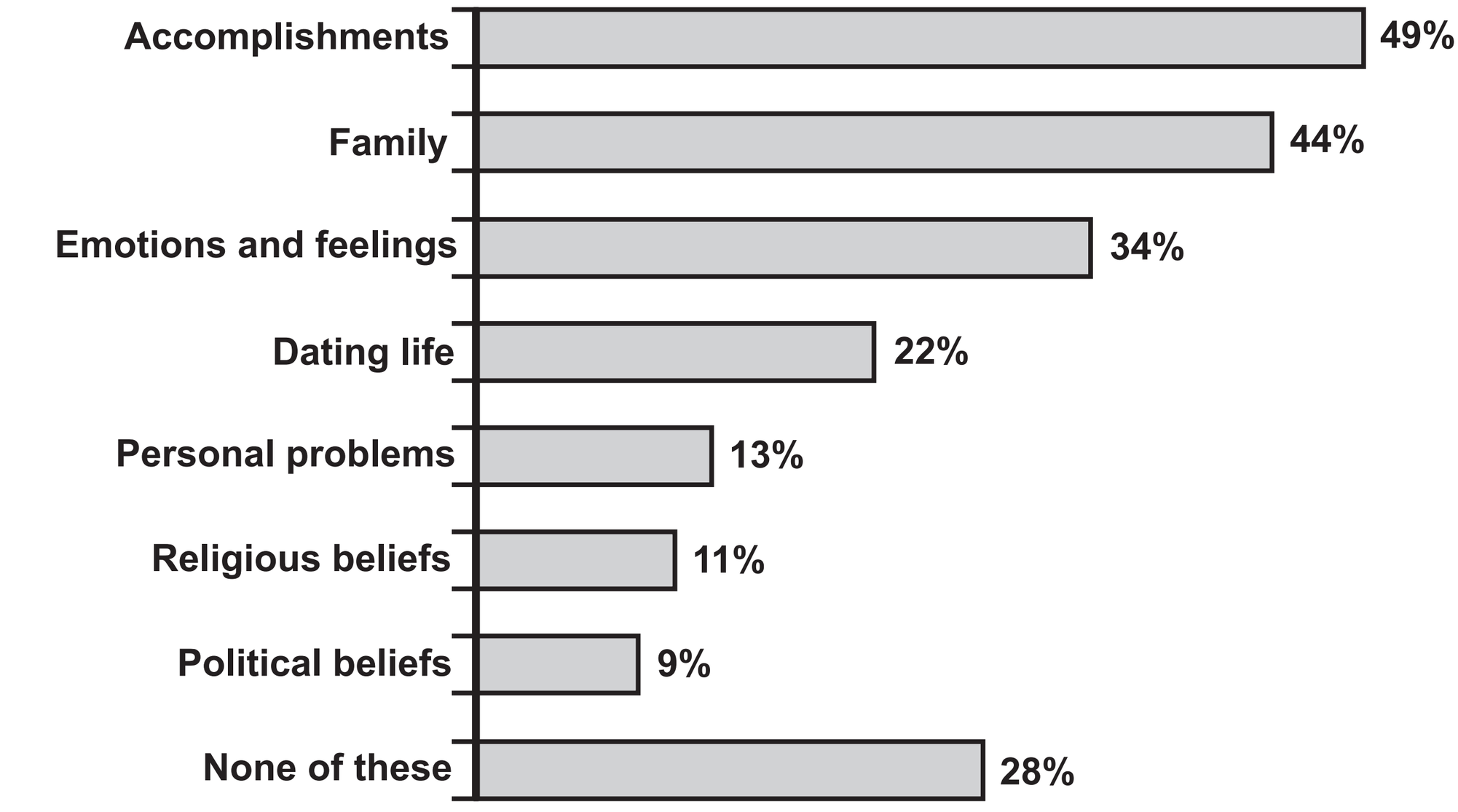
Table

	NUMBER OF PASSENGERS	
MONTH	2017	2018
May	147 521	165 364
June	185 787	181 564
July	172 117	192 257
August	182 424	202 638
September	166 636	178 681

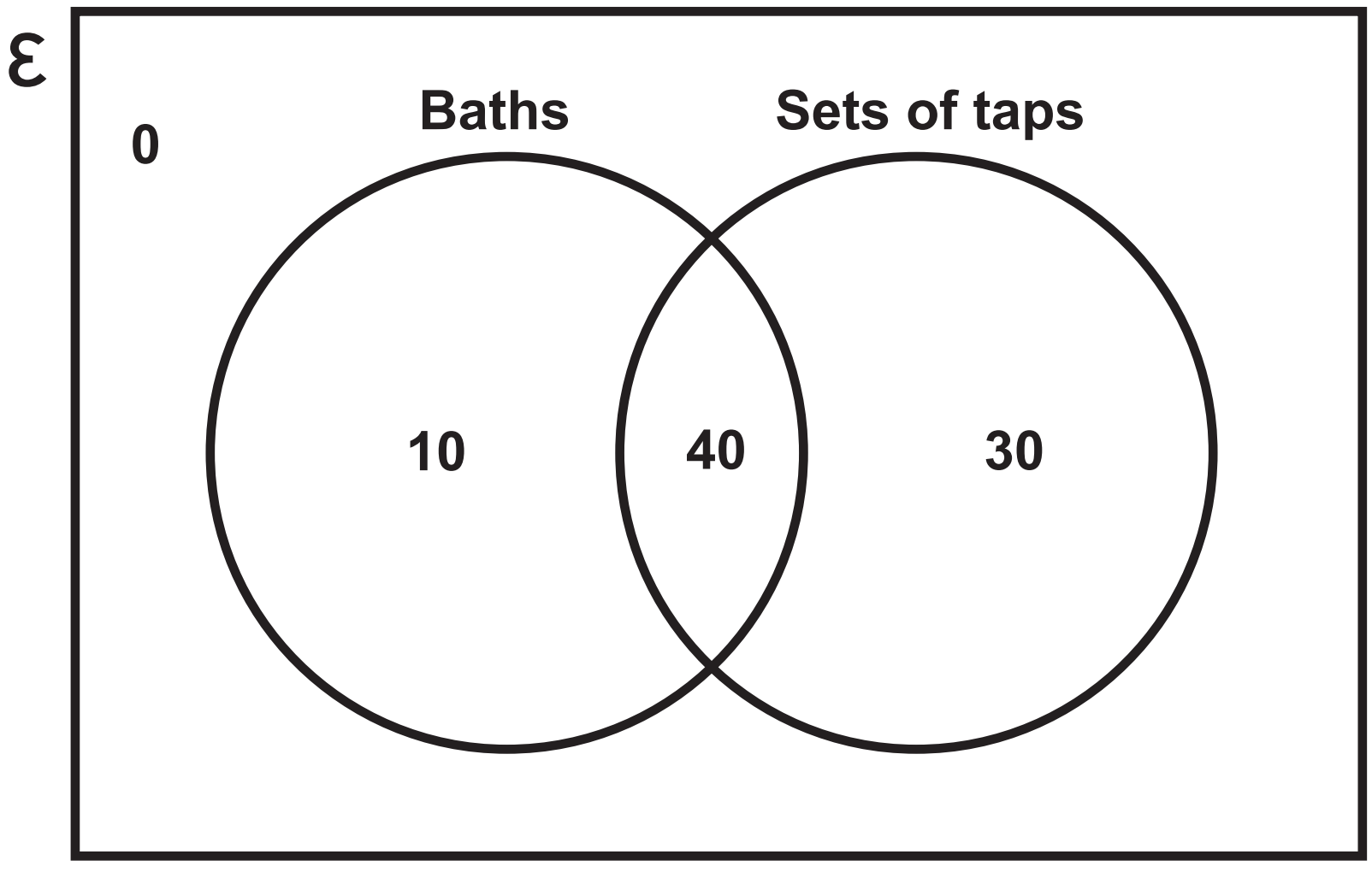
Question 5

POSTS ON SOCIAL MEDIA

Percentage of American teenagers who say they have posted about the following:

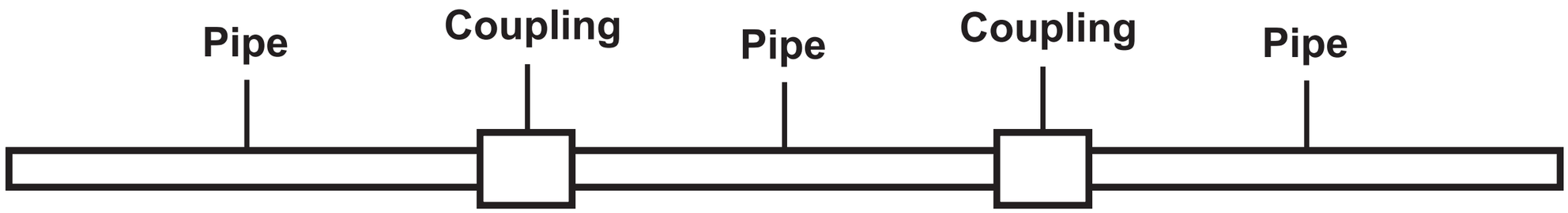


Question 6 (a)



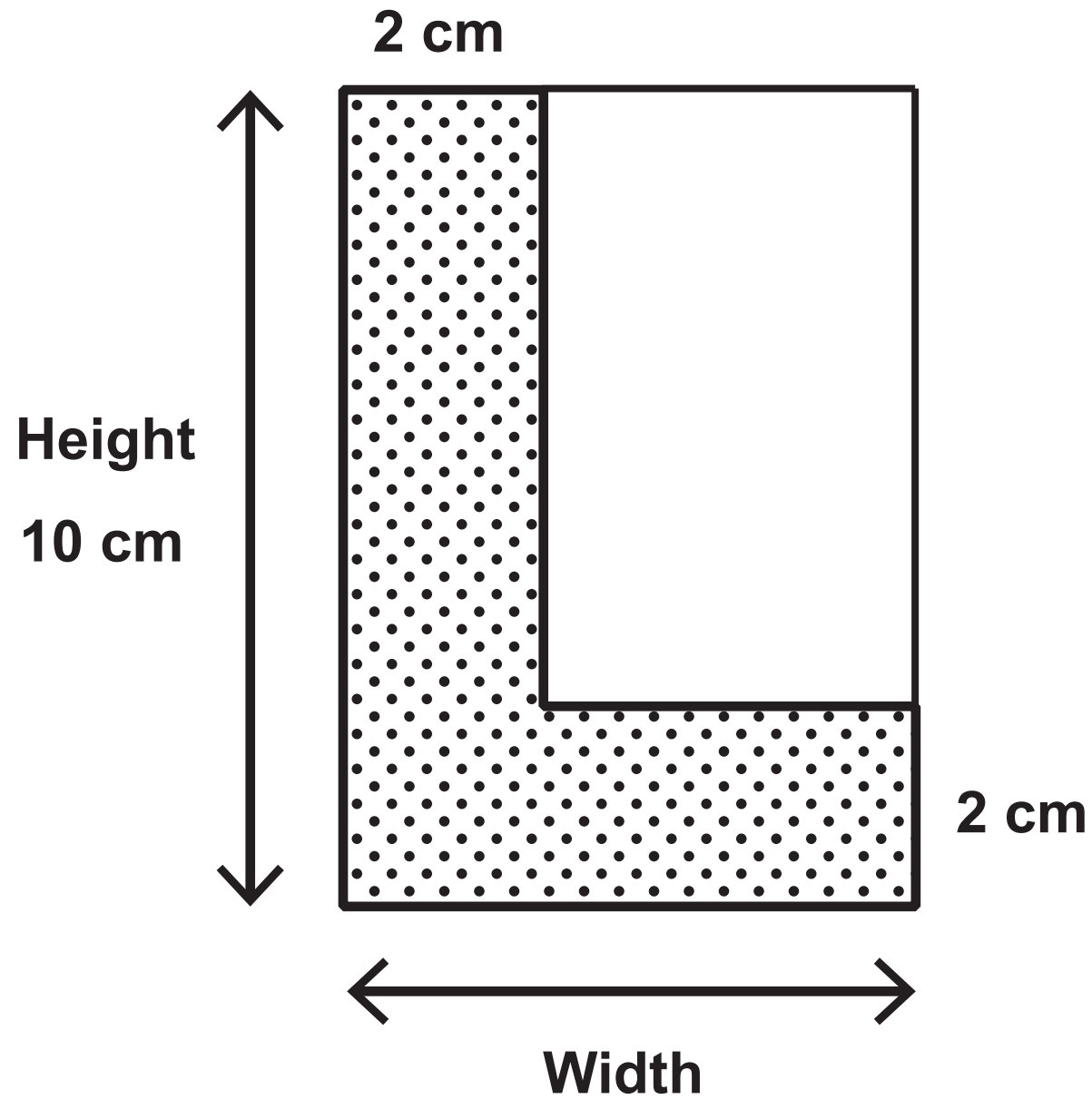
Question 6 (b) (i)

Diagram NOT drawn to scale



Question 7

Diagram NOT drawn to scale



Question 8

Questionnaire

Q1. Do you live within 5 minutes' walking distance of school?

Q2. How often do you play board games?

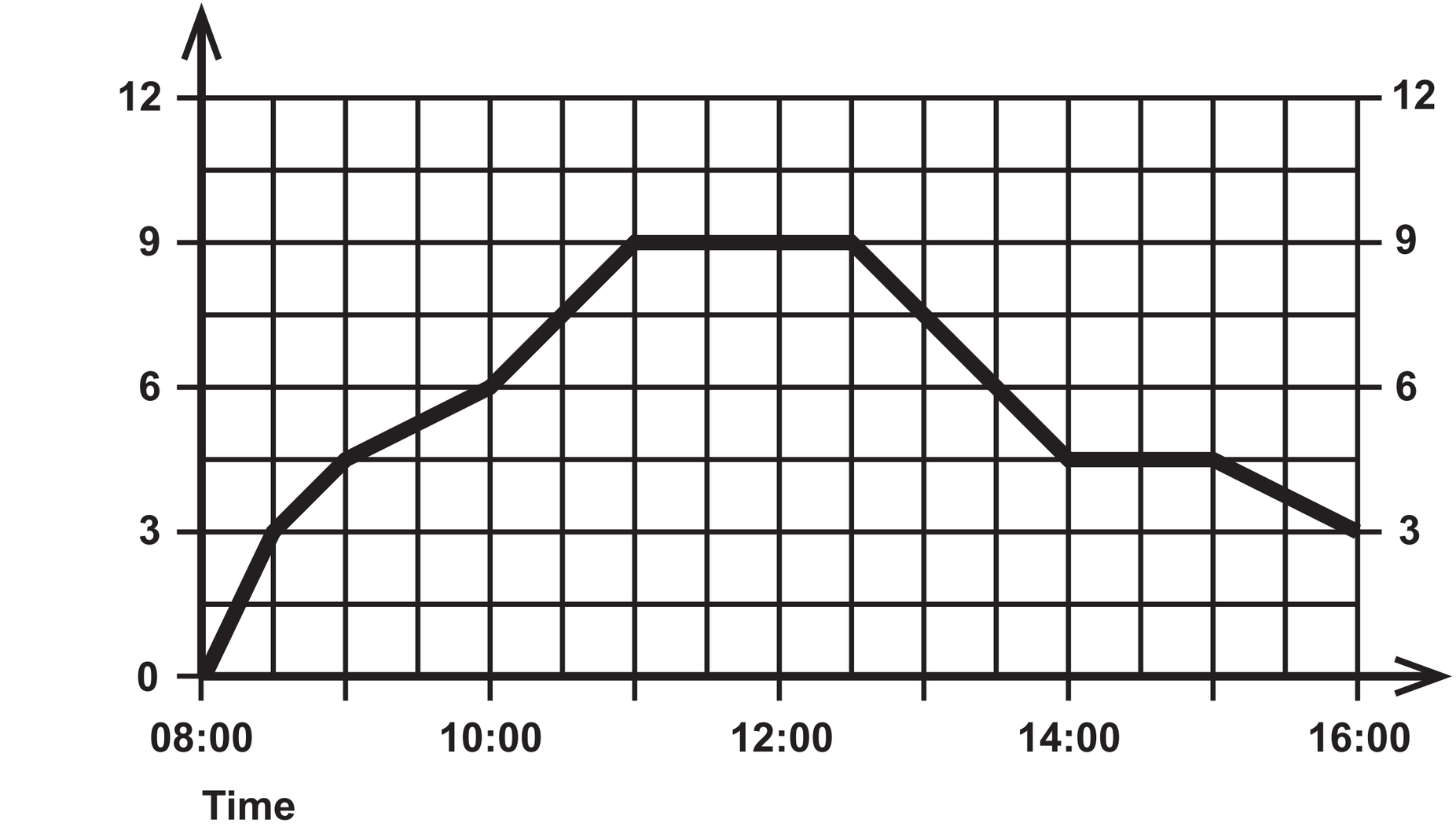
Never ☐

1 – 5 times ☐

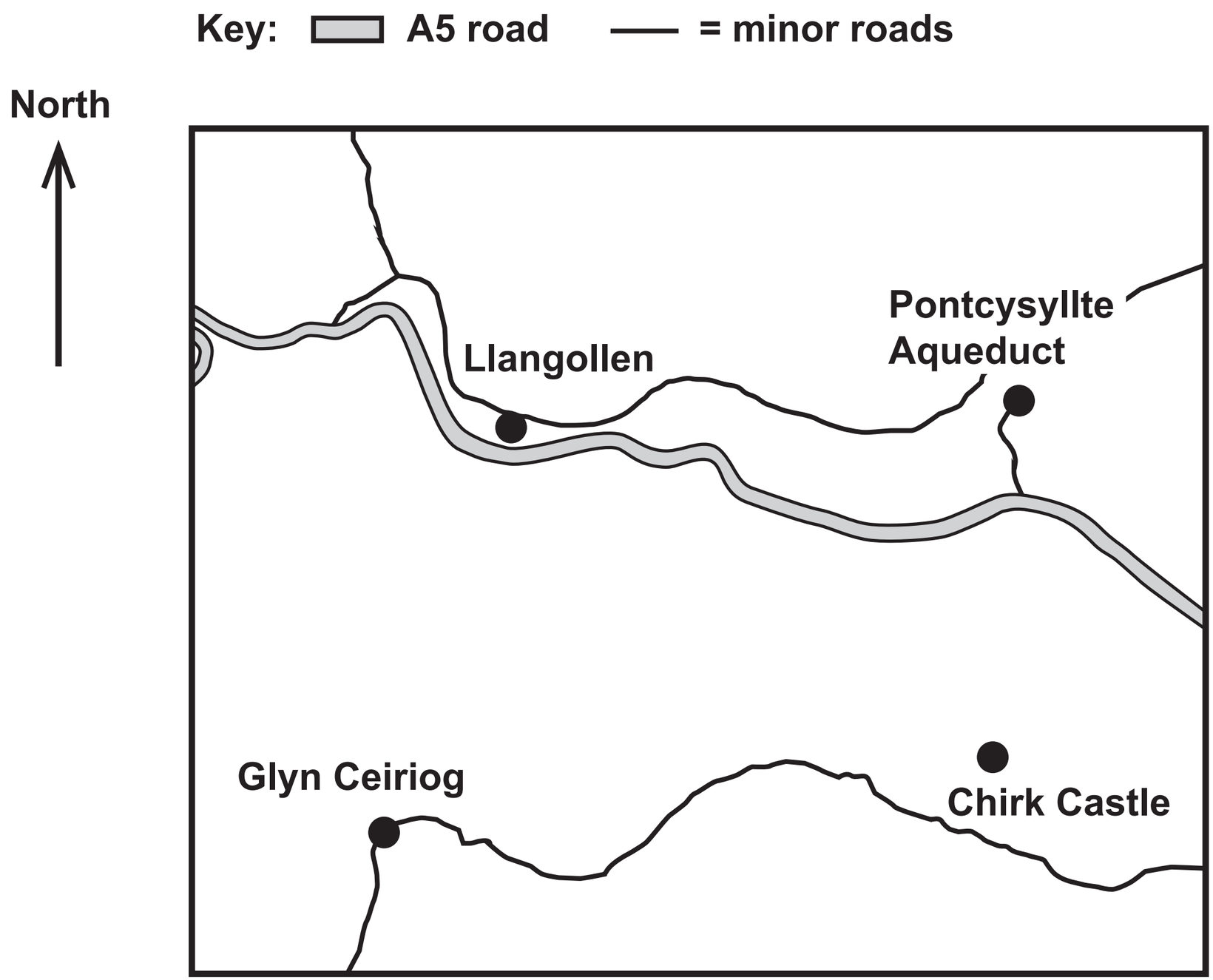
5 – 10 times ☐

More than 10 times ☐

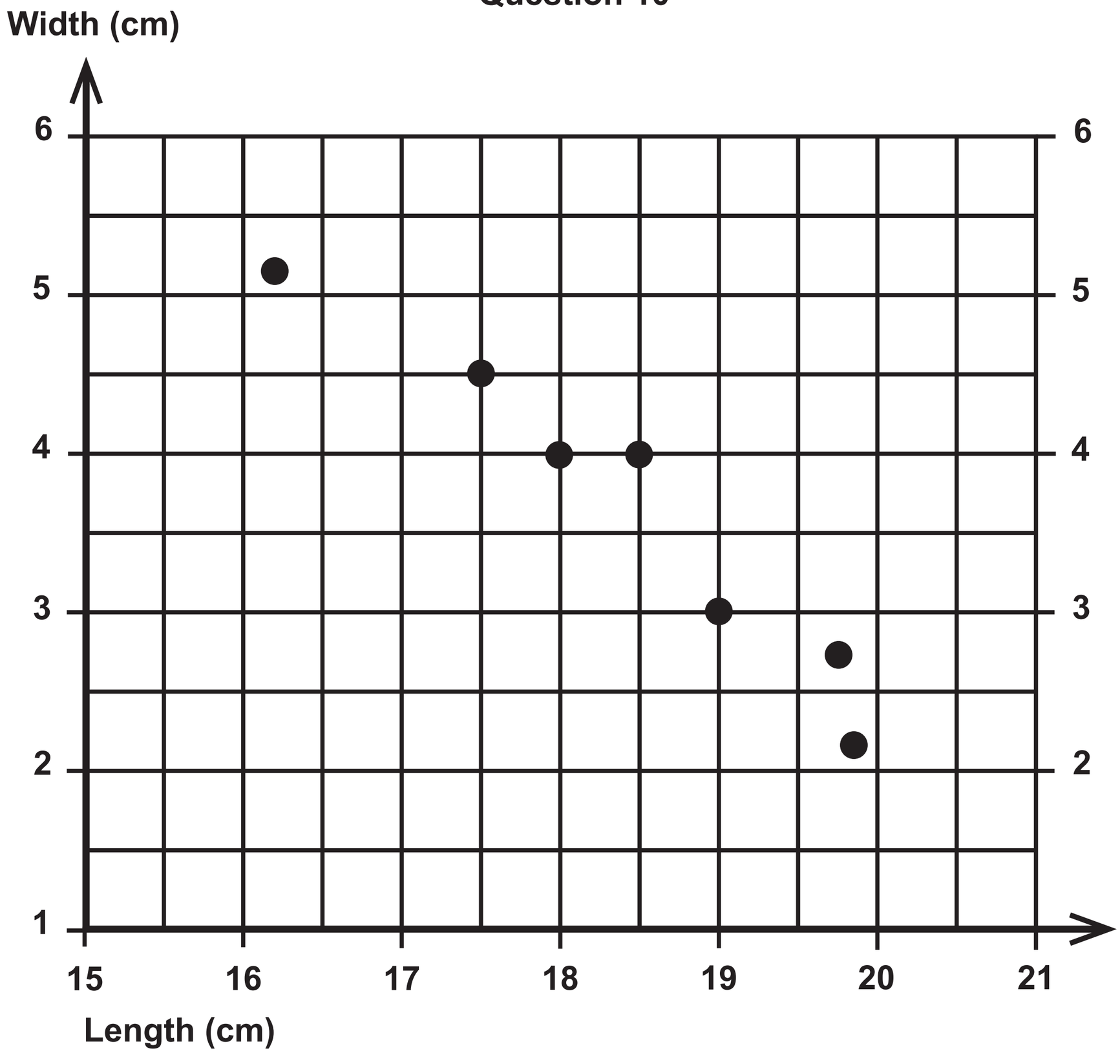
Question 9 (a)


Distance along the canal
from Llangollen (km)
12
9
6
3
0
12
9
6
3
08:00
10:00
12:00
14:00
16:00
Time

Question 9 (b)


Key:
A5 road
= minor roads
North
Llangollen
Pontcysyllte
Aqueduct
Glyn Ceiriog
Chirk Castle

Question 10



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