



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	

(Turn over)

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.

(Turn over)

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 3.14

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

(Turn over)

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 . . .

(Turn over)

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 . . .

(Turn over)

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.**

continued on the next page . . .

(Turn over)

Question 1 (c) continued

- 1. (c) (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 . . .

(Turn over)

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 . . .

(Turn over)

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]

(Turn over)

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

☐

continued on the next page . . .

(Turn over)

Question 1 (c) (iv) continued

**You must show working to
support your answer.**

[2 marks]

(Turn over)

2. Mr Evans owns a gift shop.

**(a) Look at the information
provided for Question 2 (a)
in the separate Diagram Booklet.
He bought 40 boxes of
chocolates from the internet
to sell in his gift shop.**

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

continued on the next page . . .

(Turn over)

Question 2 (a) (i) continued

**How much did Mr Evans
pay for the 40 boxes of
chocolates?**

**You must show all your
working.**

(Turn over)

15

[3 marks + 2 marks OCW]

continued on the next page . . .

(Turn over)

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.**

continued on the next page . . .

(Turn over)

Question 2 (a) (ii) continued

**How much PROFIT did
Mr Evans make?**

**You must show all your
working.**

(Turn over)

[illegible]

(Turn over)

[5 marks]

continued on the next page . . .

(Turn over)

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.

continued on the next page . . .

(Turn over)

Question 2 (b) continued

**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 . . .

(Turn over)

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 . . .

(Turn over)

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.

continued on the next page . . .

(Turn over)

Question 2 (c) continued

**Estimate the area of the flower
on the poster.**

Area of the flower on the poster

_____ cm²

[3 marks]

(Turn over)

- 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 . . .

(Turn over)

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.**

(Turn over)

[2 marks]

continued on the next page . . .

(Turn over)

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 ?

(Turn over)

Months:

_____ and _____

[2 marks]

continued on the next page . . .

(Turn over)

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.**

continued on the next page . . .

(Turn over)

Question 3 (d) continued

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

[3 marks]

(Turn over)

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.

(Turn over)

[illegible]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[3 marks]
(Turn over)

- 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.

continued on the next page . . .

(Turn over)

Question 5 continued

- 5. (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 . . .

(Turn over)

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]

continued on the next page . . .

(Turn over)

Question 5 continued

- 5. (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 . . .

(Turn over)

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]

(Turn over)

Question 5 continued

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

(Turn over)

[3 marks]

continued on the next page . . .

(Turn over)

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%

(Turn over)

43

[1 mark]

(Turn over)

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.**

continued on the next page . . .

(Turn over)

Question 6 (a) continued

**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]

(Turn over)

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.**

(Turn over)

47

[3 marks]
(Turn over)

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?

(Turn over)

[1 mark]

continued on the next page . . .

(Turn over)

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

continued on the next page . . .

(Turn over)

Question 6 (b) (ii) continued

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]

(Turn over)

- 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.**

continued on the next page . . .

(Turn over)

Question 7 continued

**The cost of printing is 50p for
an area of 2 cm²**

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

(Turn over)

(Turn over)

55

[5 marks]

(Turn over)

- 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.

continued on the next page . . .

(Turn over)

Question 8 continued

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

Q1. _____

Q2. _____

[2 marks]

continued on the next page . . .

(Turn over)

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]

(Turn over)

- 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.

continued on the next page . . .

(Turn over)

Question 9 (a) continued

9. (a) (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 . . .

(Turn over)

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 . . .

(Turn over)

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 . . .

(Turn over)

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]

(Turn over)

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]

(Turn over)

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

(Turn over)

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

[illegible]

(Turn over)

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

3310U10-1

FRIDAY, 19 MAY 2023 – MORNING

**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 m²
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 (a)

Information

INTERNET PRICE

£5 per box

**Orders over £100 get 25%
off the total cost**

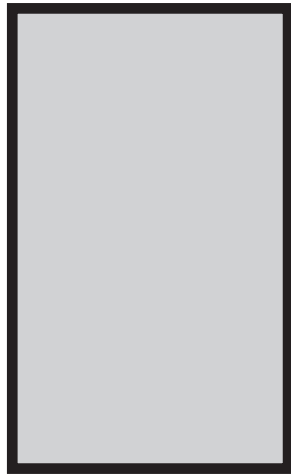
Question 2 (b)

Diagrams NOT drawn to scale

Panel A

35 cm

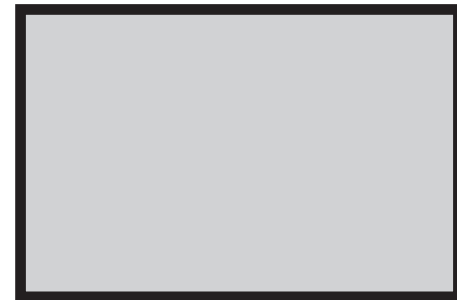
1.8 m



Panel B

4 m

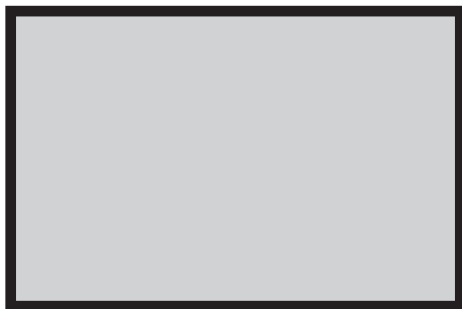
180 cm



Panel C

180 cm

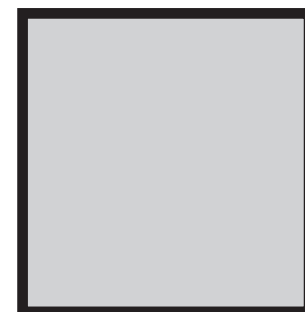
0.35 m



Panel D

40 cm

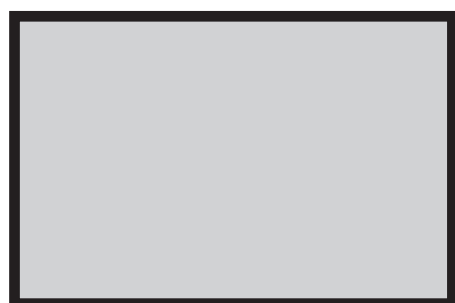
0.35 m



Panel E

180 cm

0.4 m



Panel F

180 cm

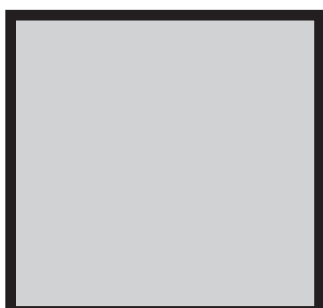
1.8 m



Panel G

35 cm

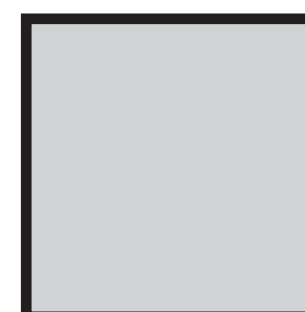
40 cm



Panel H

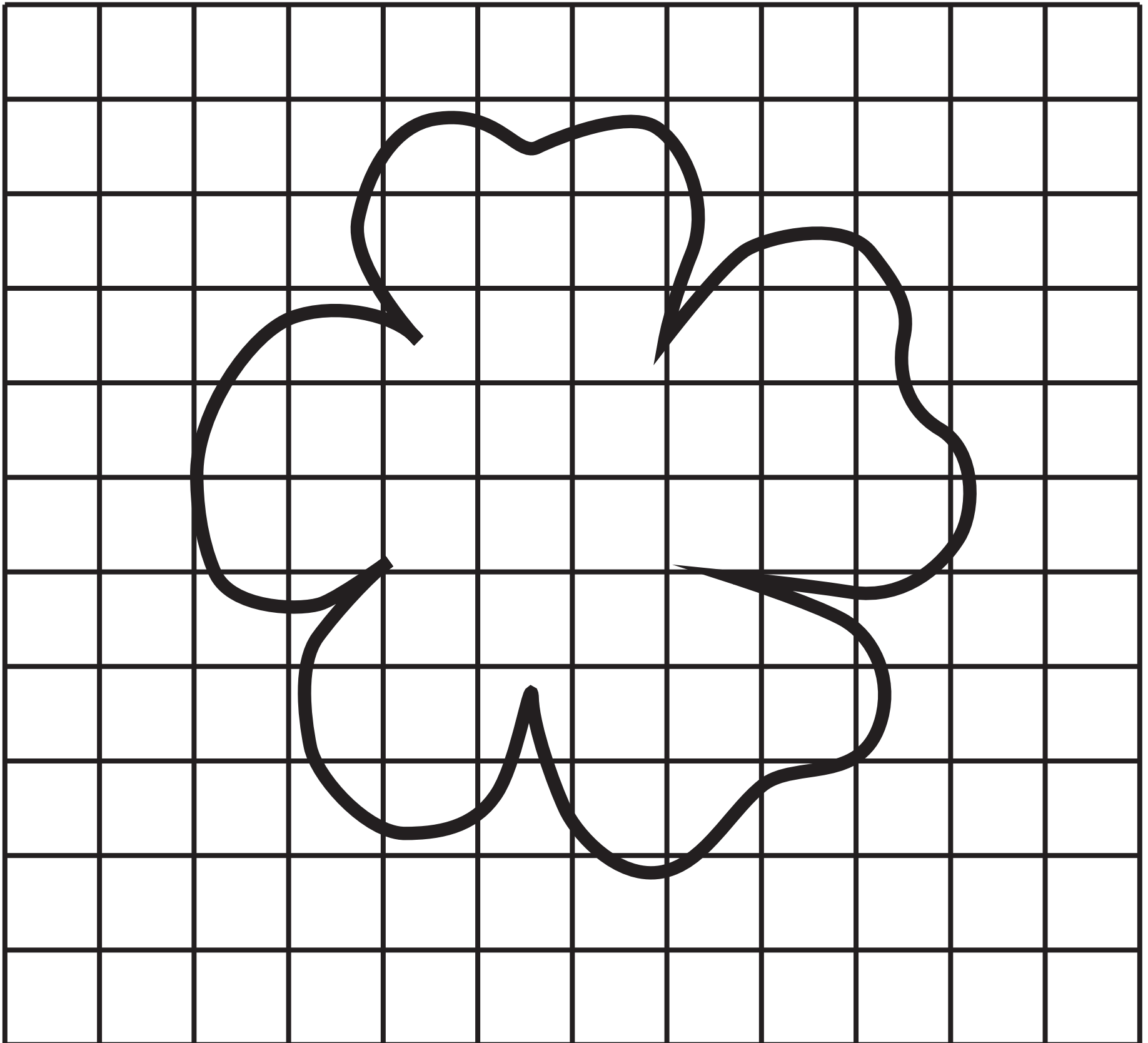
40 cm

0.4 m



Question 2 (c)

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



Question 3

Table

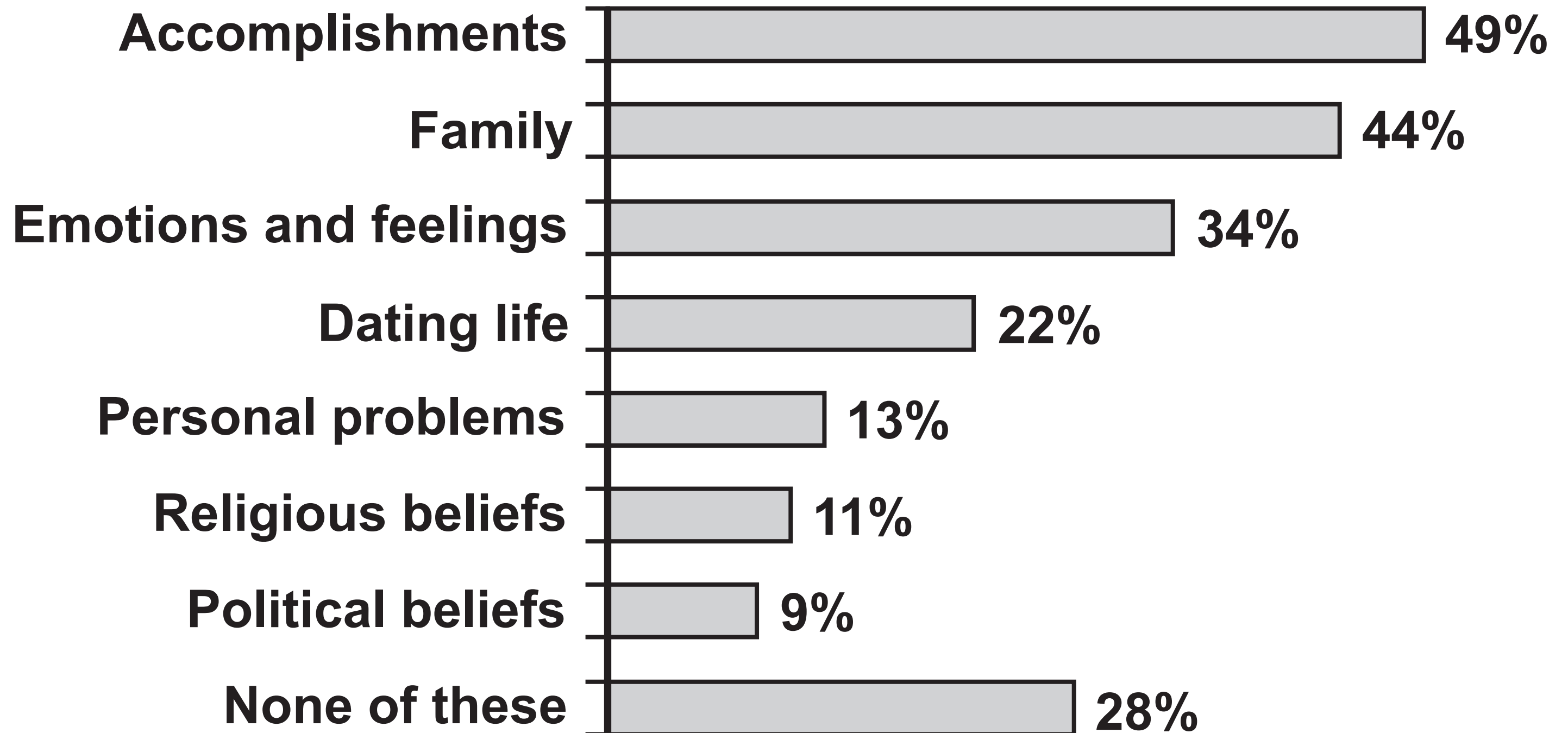
	NUMBER OF PASSENGERS	
	2017	2018
MONTH		
May	147 521	165 364
June	185 787	181 564
July	172 117	192 257
August	182 424	202 638
September	166 636	178 681

Question 5

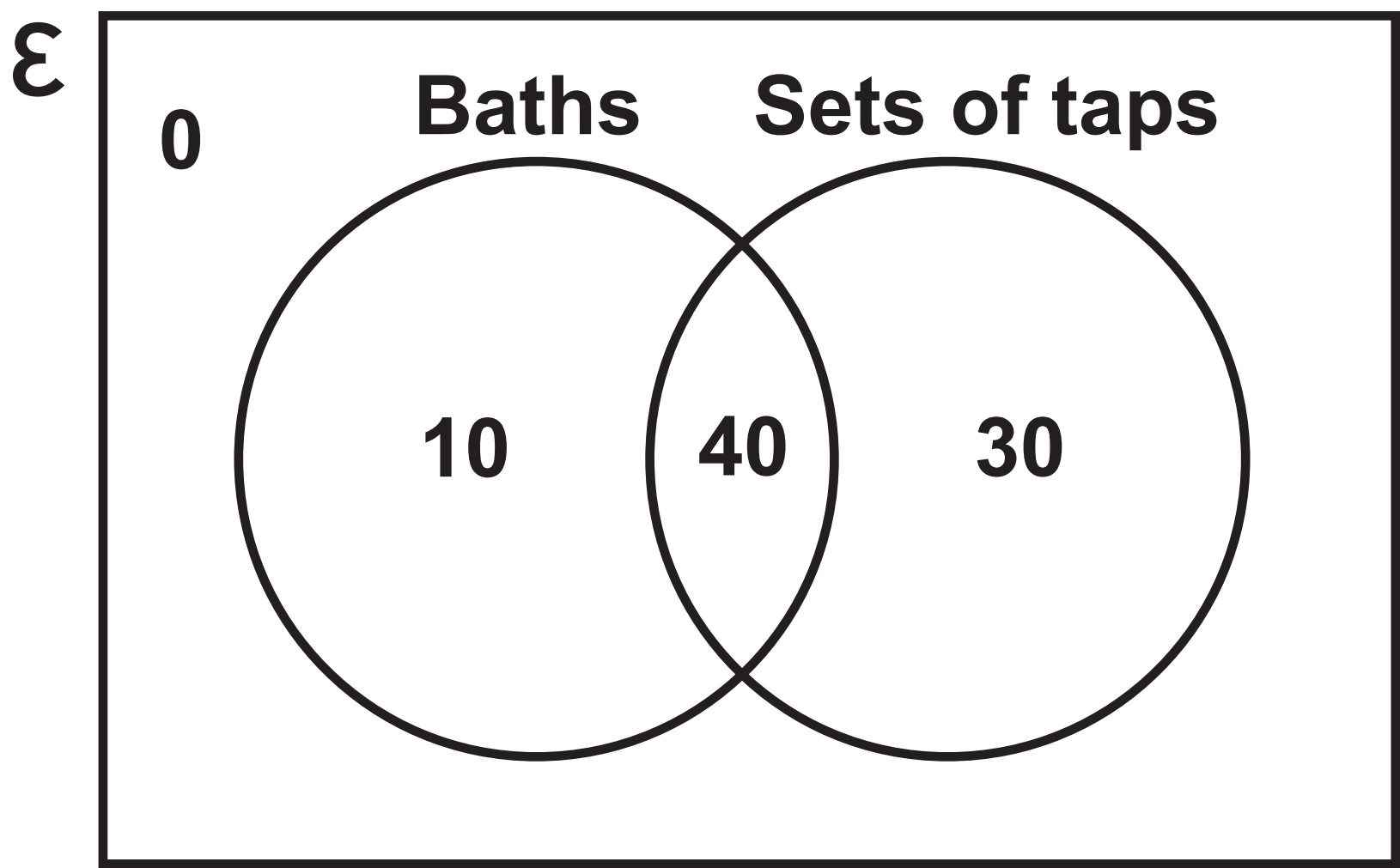
POSTS ON SOCIAL MEDIA

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

TYPE OF INFORMATION

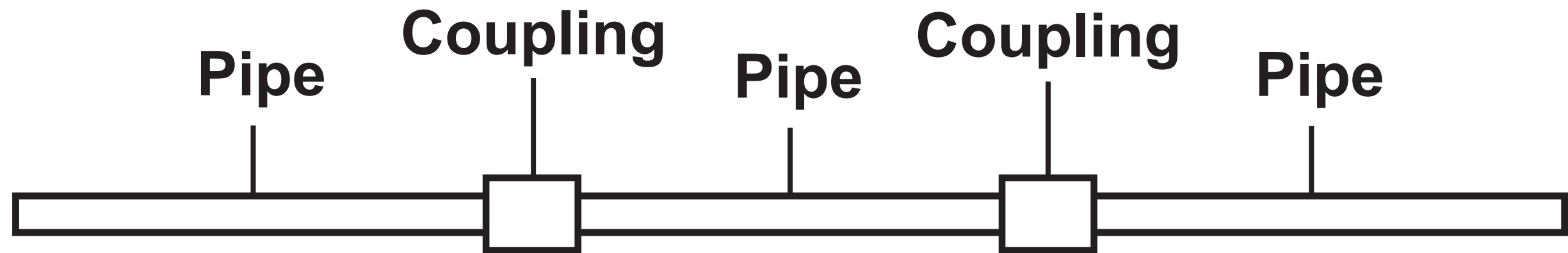


Question 6 (a)



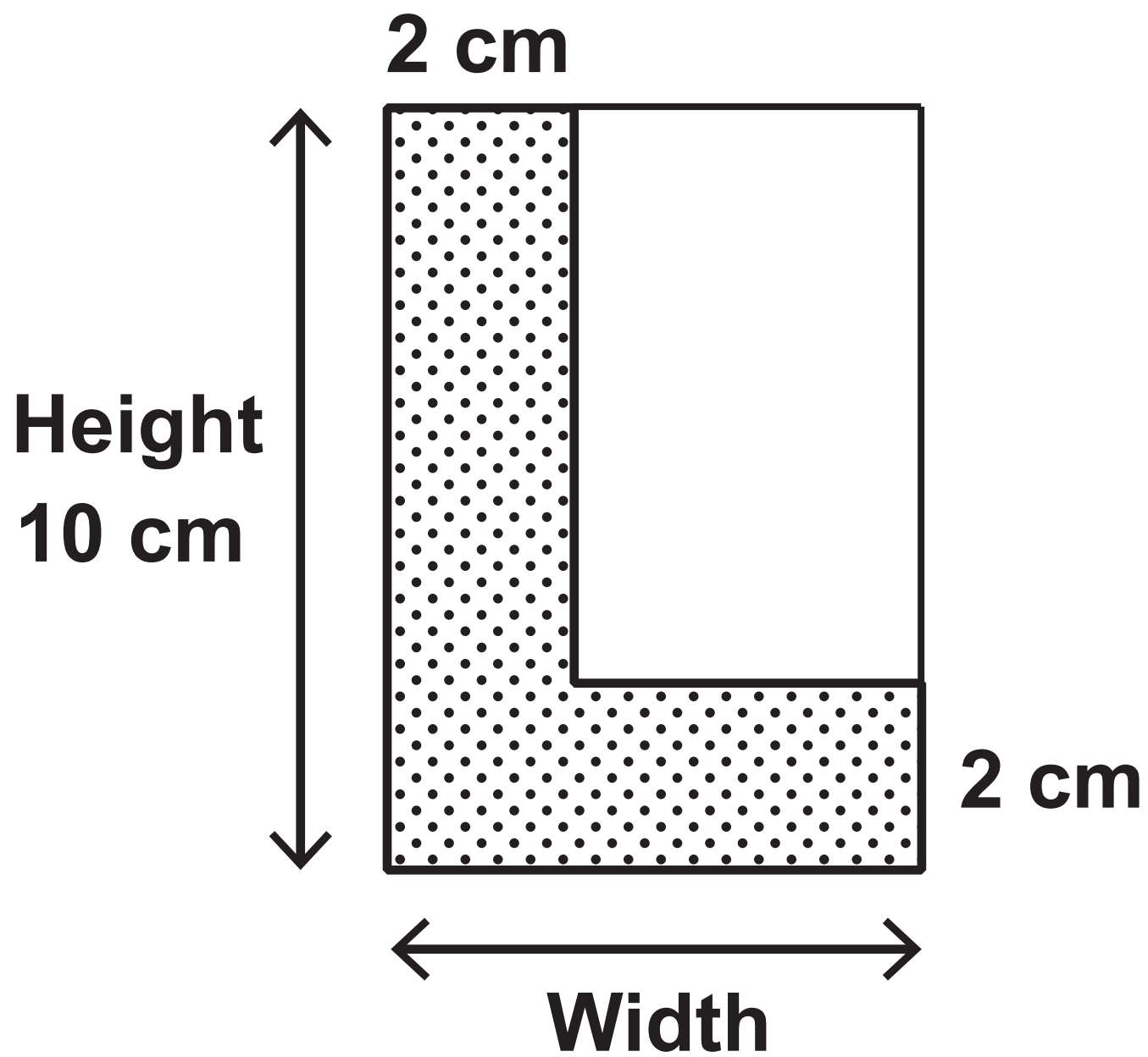
Question 6 (b) (i)

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

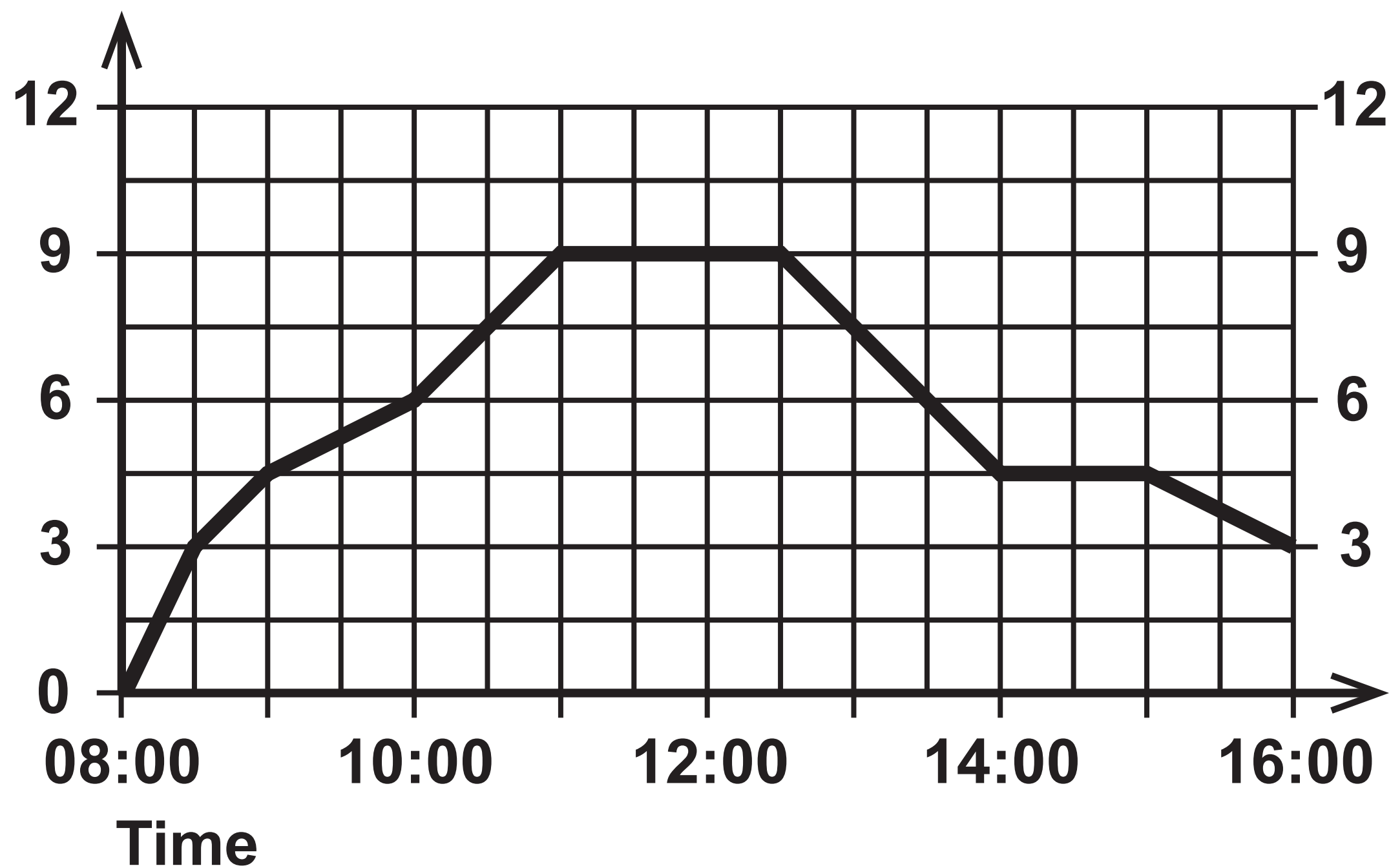
☐

More than 10 times

☐

Question 9 (a)

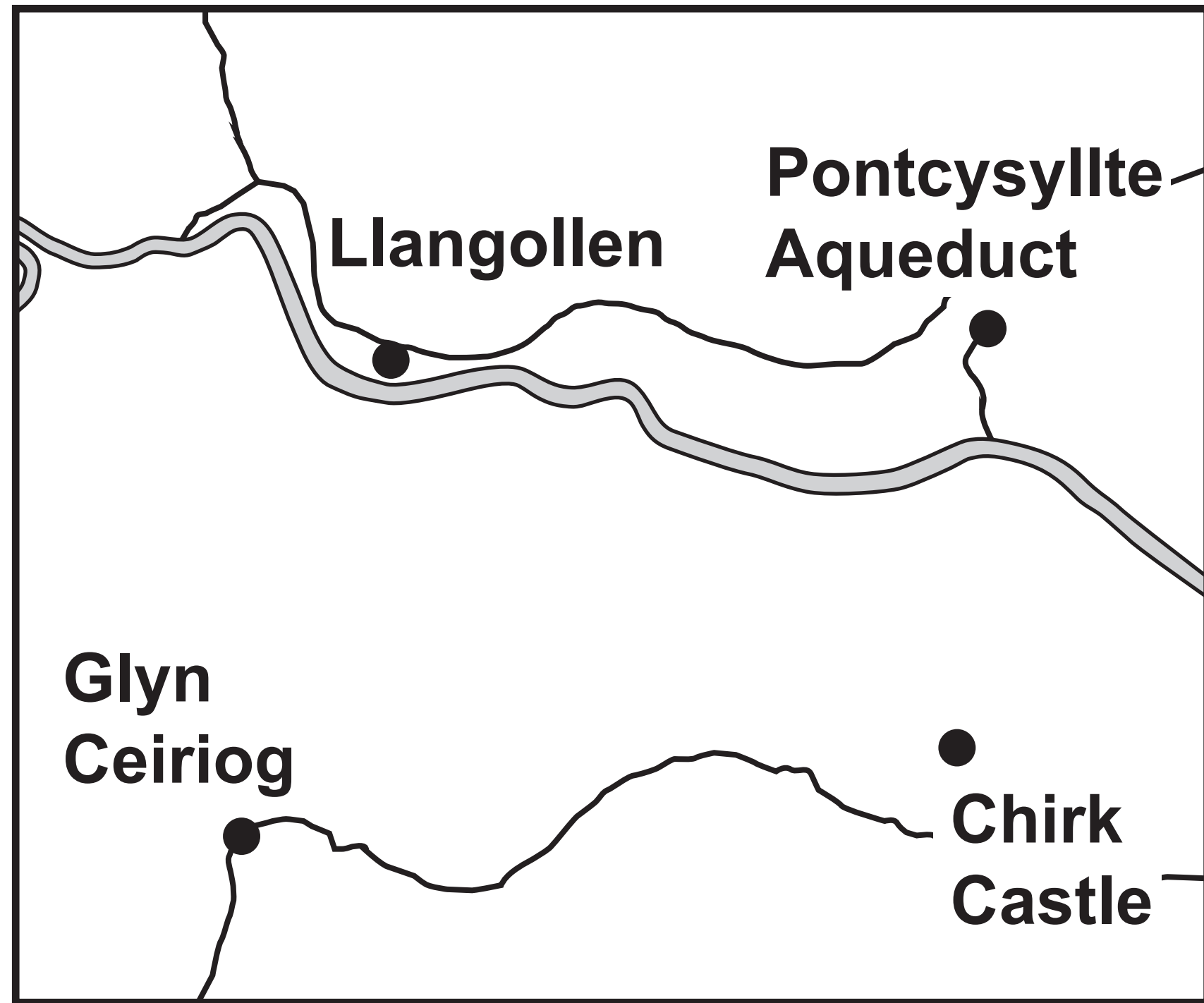
Distance along the canal
from Llangollen (km)



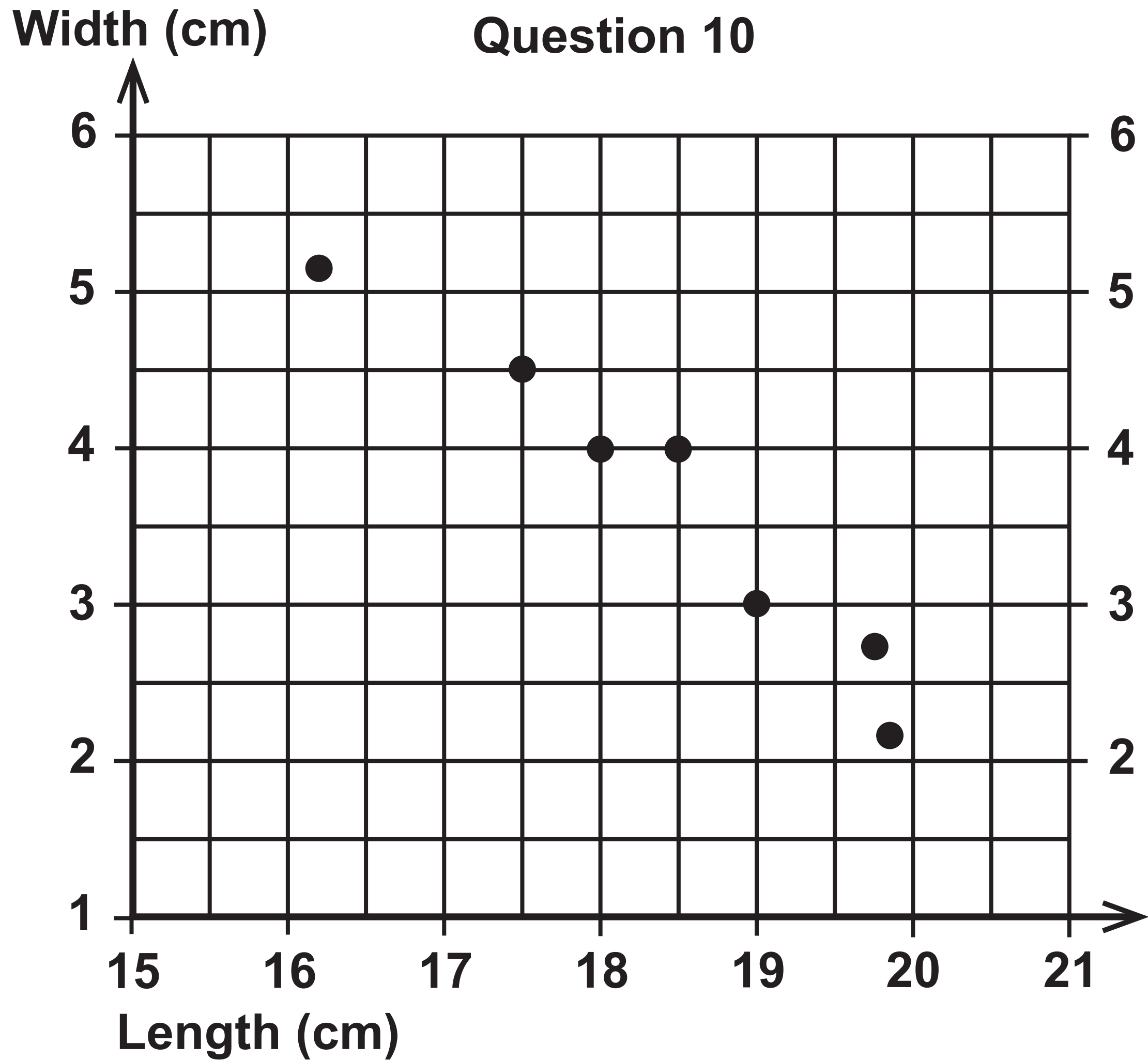
Question 9 (b)

Key:  = A5 road  = minor roads

North



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

