GCSE

3310U10-1

MATHEMATICS – NUMERACY

UNIT 1: NON – CALCULATOR FOUNDATION TIER

TUESDAY, 5 NOVEMBER 2019 – MORNING

1 hour 30 minutes
(plus your additional time allowance)

THE USE OF A CALCULATOR IS NOT PERMITTED IN THIS EXAMINATION

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	4	
2.	8	
3.	10	
4.	7	
5.	4	
6.	7	
7.	4	
8.	5	
9.	3	
10.	4	
11.	6	
12.	3	
Total	65	

Surname:	
First name(s):	
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 4 (c) and Question 5.

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 pages at the back of the booklet.
Question numbers must be given for all 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 3, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

1. Tina is opening a day – care business for children, called TINA'S TOTS.

   In Wales, to look after children, there must be:

   - 1 adult for up to 3 children under 2 years of age,
   - 1 adult for up to 4 children aged 2 years,
   - 1 adult for up to 8 children aged 3 to 7 years.

   Look at the information provided for Question 1 in the separate Diagram Booklet. The ages of the children that will be attending TINA'S TOTS are shown.

   By completing the table on the next page, calculate the total number of adults needed to look after these children.

continued on the next page . . .

Question 1 continued

Age in years	Under 2	2	3 to 7
Number of children			
Number of adults			

Total number of adults needed = _____

[4 marks]

2. (a) The show, JOSEPH AND THE AMAZING TECHNICOLOR DREAMCOAT, is on at the theatre.

(i)

The show starts at 7:30 p.m.
The show is in 2 acts.
Act 1 is 42 minutes long.
There is an interval of 20 minutes.
Act 2 is 48 minutes long.

At what time will the show end?

[4 marks]

2. (a) (ii) Mr and Mrs Hanbury book seats for the show.

Mr and Mrs Hanbury's tickets are shown below.

Ticket for: JOSEPH AND THE AMAZING TECHNICOLOR DREAMCOAT STALLS Row G Seat 15	Ticket for: JOSEPH AND THE AMAZING TECHNICOLOR DREAMCOAT STALLS Row G Seat 16

continued on the next page . . .

Question 2 (a) (ii) continued

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

The diagram shows the seating plan of the theatre.

Circle Mr and Mrs Hanbury's seats on the seating plan.

[1 mark]

continued on the next page . . .

Question 2 continued

2. (b) In a survey, people were asked,

"Have you been to any arts events in Wales in the last year?"

The percentages of people answering "Yes" or "No" were calculated.

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

The results for some local authorities are shown in the table.

Use the information in the table to answer the following questions.

(i) Which local authority has the largest percentage of people who answered "Yes"?

_____

_____

[1 mark]

Question 2 continued

2. (b) (ii) How many local authorities have a greater percentage of people answering "No" rather than "Yes"?

_____

_____

_____

[1 mark]

(iii) What is the range of the percentage of people who answered "No"? Circle your answer.

33%	**21%**	**44%**	**11%**	**54%**

_____

_____

_____

[1 mark]

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

Cai wants to buy a new computer.

The total cost of the computer is £400

Cai's parents give him 15% of the cost of the computer.

Cai's grandparents give him $\frac{2}{5}$ of the cost of the computer.

Cai saves £30 each month.

How many months will it take Cai to save enough money to buy the computer?

[8 marks + 2 marks OCW]

4. (a) **THE MARINE TENNIS CLUB has 6 tennis courts.**

Each court is rectangular in shape.

Look at the diagram for Question 4 (a) in the separate Diagram Booklet.
The diagram shows A SCALE DRAWING of one of the tennis courts.

The actual length of the tennis court is 24 metres.

Using a ruler to measure the length of the scale diagram, find the ACTUAL WIDTH of the tennis court.

_____

_____

_____

_____

_____

[3 marks]

continued on the next page . . .

Question 4 continued

4. (b) (i) THE MARINE TENNIS CLUB and THE BAY TENNIS CLUB have already played matches against 8 other clubs this season.

The table below shows the results of these matches.

	Won	Lost
THE MARINE TENNIS CLUB	3	5
THE BAY TENNIS CLUB	6	2

continued on the next page . . .

Question 4 (b) (i) continued

THE MARINE TENNIS CLUB are playing THE BAY TENNIS CLUB in their next match.

It is NOT POSSIBLE to tell from the information in the table which team is more likely to win the match. Give one reason why it is not possible.

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 4 (b) continued

4. (b) (ii) Look at the calendar for Question 4 (b) (ii) in the separate Diagram Booklet.

The match between the two clubs will take place on 24th November 2019.

Look at the table for Question 4 (b) (ii) in the separate Diagram Booklet.
The table shows when players are available to play.
The club needs 6 players for the match.

Using the end column in the table, tick the 6 players who should be available on 24th November.

[2 marks]

continued on the next page . . .

Question 4 continued

4. (c) Ask for the model for Question 4 (c).
The model represents a tennis ball.

Which of the following is the best description for the shape of a tennis ball? Circle your answer.

Cone	Cube	Cuboid	Sphere	Cylinder

[1 mark]

5. Ask for the model for Question 5.

The model is NOT made to scale.

The model represents a tractor tyre.

Tractors need to have tyres of the correct size. All tyres have codes on them. The code on a tractor's front tyre is 320/85R20

The '320' means that the tyre is 320 mm wide.

(a) What is 320 mm in cm?

_____

_____

_____

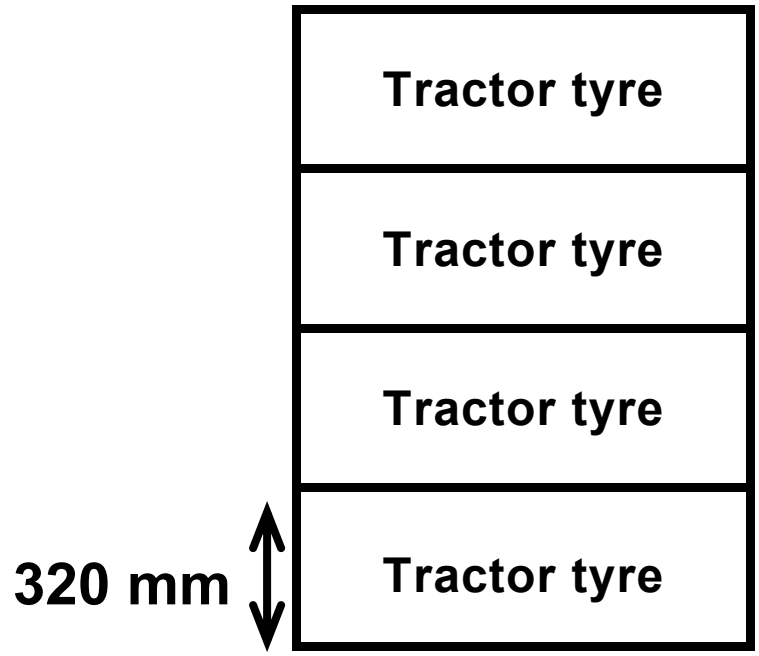
[1 mark]

continued on the next page . . .

Question 5 continued

5. (b) Look at the simplified 2D diagram of tractor tyres below.

The diagram is NOT drawn to scale.



A company that sells the tractor tyres stacks them one on top of each other.

For safety reasons the piles are no more than 2 metres high.

What is the greatest number of tyres that can be stacked safely in a single pile?

_____

_____

Greatest number of tyres is _____

[3 marks]

6. Every year, ABER YOUNG FARMERS club organises a sponsored walk.

(a) This year, the length of the walk is 20 miles.

Calculate the length of the walk in km.

[2 marks]

continued on the next page . . .

Question 6 continued

6. (b) Last year, the walk raised a total of £3600

It cost £180 to organise the walk last year.

Give the cost of organising the walk as a percentage of the total raised.

[2 marks]

continued on the next page . . .

Question 6 continued

6. (c) This year, walkers will be charged to take part.

ABER YOUNG FARMERS decided that:

$$\text{charge in pence} = 3 \times \text{height of the walker in cm}$$

What is the height of the shortest walker who will need to pay a charge of more than £5?

Give your answer correct to the nearest cm.

You must show all your working.

[3 marks]

7. Look at the Venn diagrams for Question 7 in the separate Diagram Booklet.

SOUND5 sells pairs of earphones and USB leads.
The Venn diagrams show the number of customers who visited the shop last Friday and last Saturday.

No customers visited the shop on both days.
No customers bought more than 1 pair of earphones and 1 USB lead.

Earphones sell for £15 and USB leads sell for £3

(a) How much did SOUND5 customers spend buying USB leads on FRIDAY?

[2 marks]

7. (b) Over the two days, how many customers did NOT buy either earphones or a USB lead?
Circle your answer.

27	45	40	57	72

[1 mark]

continued on the next page . . .

Question 7 continued

7. (c) What fraction of FRIDAY's customers bought both earphones and a USB lead? Circle your answer.

$\frac{1}{10}$	$\frac{1}{4}$	$\frac{10}{40}$	$\frac{10}{67}$	$\frac{40}{67}$

[1 mark]

8. The students in Mr Griffin's mathematics class all recorded how long they spent on their last mathematics homework.
None of his students spent less than 10 minutes on this homework.
All of his students attempted the homework.

Look at the diagram for Question 8 in the separate Diagram Booklet.
The diagram is a frequency diagram.

Mr Griffin has drawn a frequency diagram to display the times recorded by his students.
He used groups of width 10 minutes:

$10 \leq \text{time} < 20$

$20 \leq \text{time} < 30$

and so on.

continued on the next page . . .

Question 8 continued

8. (a) Did any student get all their mathematics homework correct?

Yes ☐ **No** ☐ **Can't tell** ☐

You must give a reason for your answer.

_____

_____

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 8 continued

8. (b) How many students are there in Mr Griffin's mathematics class?

[2 marks]

continued on the next page . . .

Question 8 continued

8. (c) Consider the students who spent less than 40 minutes on their homework.

What fraction of these students spent 30 minutes or more on their homework?

[2 marks]

9. Look at the diagram for Question 9 in the separate Diagram Booklet.

Emily has drawn a conversion graph, as shown.
She uses it to help her brother understand how to convert knots to miles per hour.

Complete each of the following statements.

(a) 23 miles per hour is equal to

_____ knots.

[1 mark]

continued on the next page . . .

Question 9 continued

9. (b) 5 knots is equal to

_____ miles per hour.

_____

_____

_____

_____

_____

[2 marks]

10. Look at the information provided for Question 10 in the separate Diagram Booklet.

Ms Logan is calculating her next water bill.

She knows that her fresh water usage is $20\ m^3$

On the water company's website she finds the information shown.

Calculate Ms Logan's water bill.

[4 marks]

11. Liam buys 3 kg of apples and

2·5 kg of pears.

Pears cost £3.40 per kilogram.

Liam pays a total of £12.40 for

the apples and pears.

Calculate the cost of one kilogram of apples.

[6 marks]

12. Waldo doesn't mind which type of pasta he buys.

In the supermarket, Waldo sees the three packets of pasta shown below.

Strozzapreti pasta	Fusilli pasta	Rigatoni pasta
500 g	400 g	250 g
for £1.25	for 96p	for 65p

Which pasta offers Waldo the best value for money?
You must show all your working.

[3 marks]

END OF PAPER

TOTAL 65 MARKS

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

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

GCSE

3310U10-1

MATHEMATICS – NUMERACY

UNIT 1: NON – CALCULATOR

FOUNDATION TIER

TUESDAY, 5 NOVEMBER 2019 – MORNING

Diagram Booklet

Surname:	
First name(s):	
Centre Number:	
Candidate Number:	**0**

Question 1

Information

0 years 6 months	7 years	0 years 8 months
7 years	1 year 1 month	4 years
1 year 6 months	3 years	0 years 5 months
5 years	4 years	7 years
6 years	2 years	3 years
0 years 4 months	5 years	0 years 9 months
2 years	0 years 4 months	1 year

Question 2 (a) (ii) – Seating plan of the theatre

Stalls

K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	K
J	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					J
H	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					H
G	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					G
F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					F
E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					E
D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					D
C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					C
B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					B
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					A

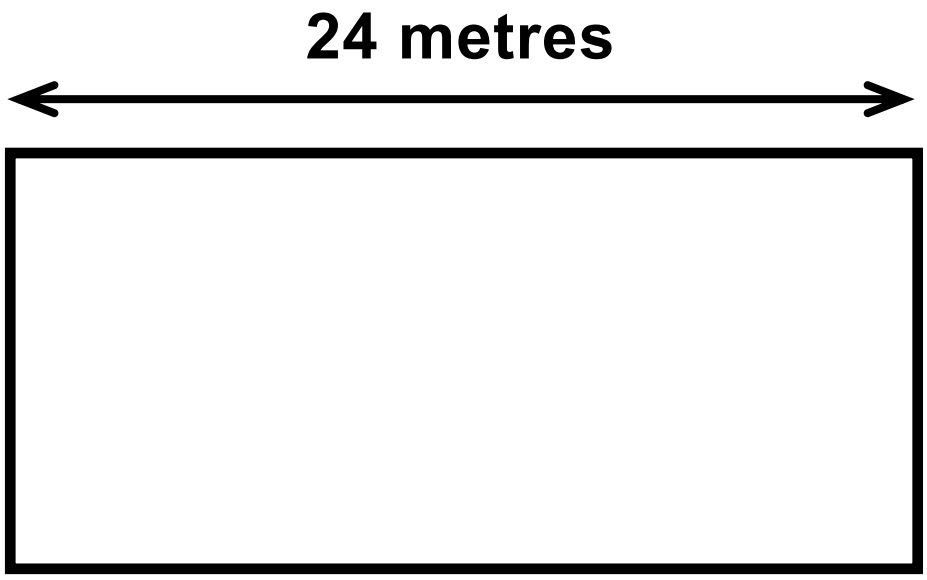
Stage

Question 2 (b)

Table

LOCAL AUTHORITY	YES %	NO %
Isle of Anglesey	60	40
Conwy	64	36
Flintshire	56	44
Powys	58	42
Pembrokeshire	57	43
Swansea	56	44
Bridgend	58	42
Cardiff	67	33
Merthyr Tydfil	47	53
Blaenau Gwent	46	54
Monmouthshire	61	39

Question 4 (a)



Question 4 (b) (ii)

Calendar

NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

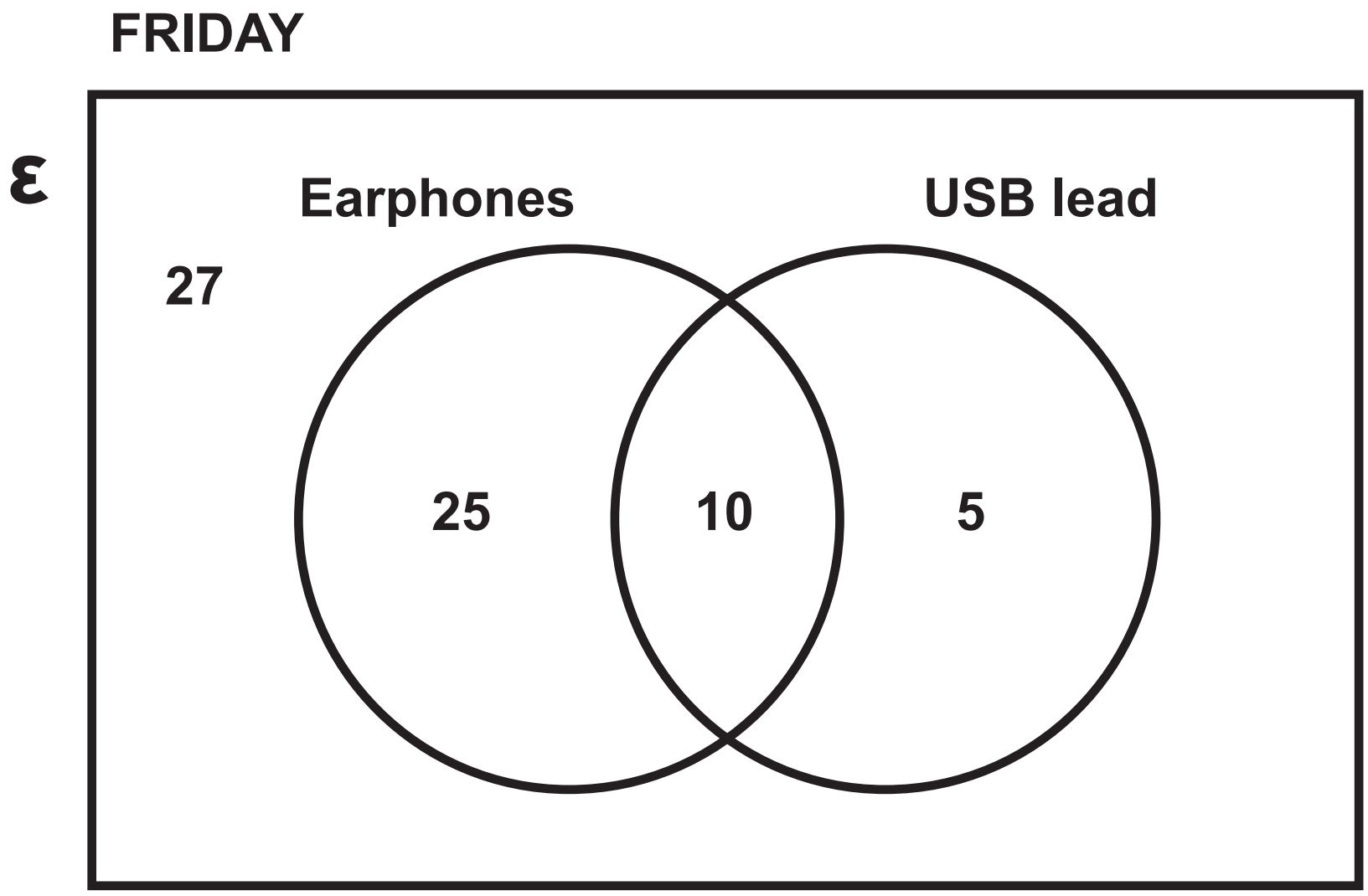
Question 4 (b) (ii)

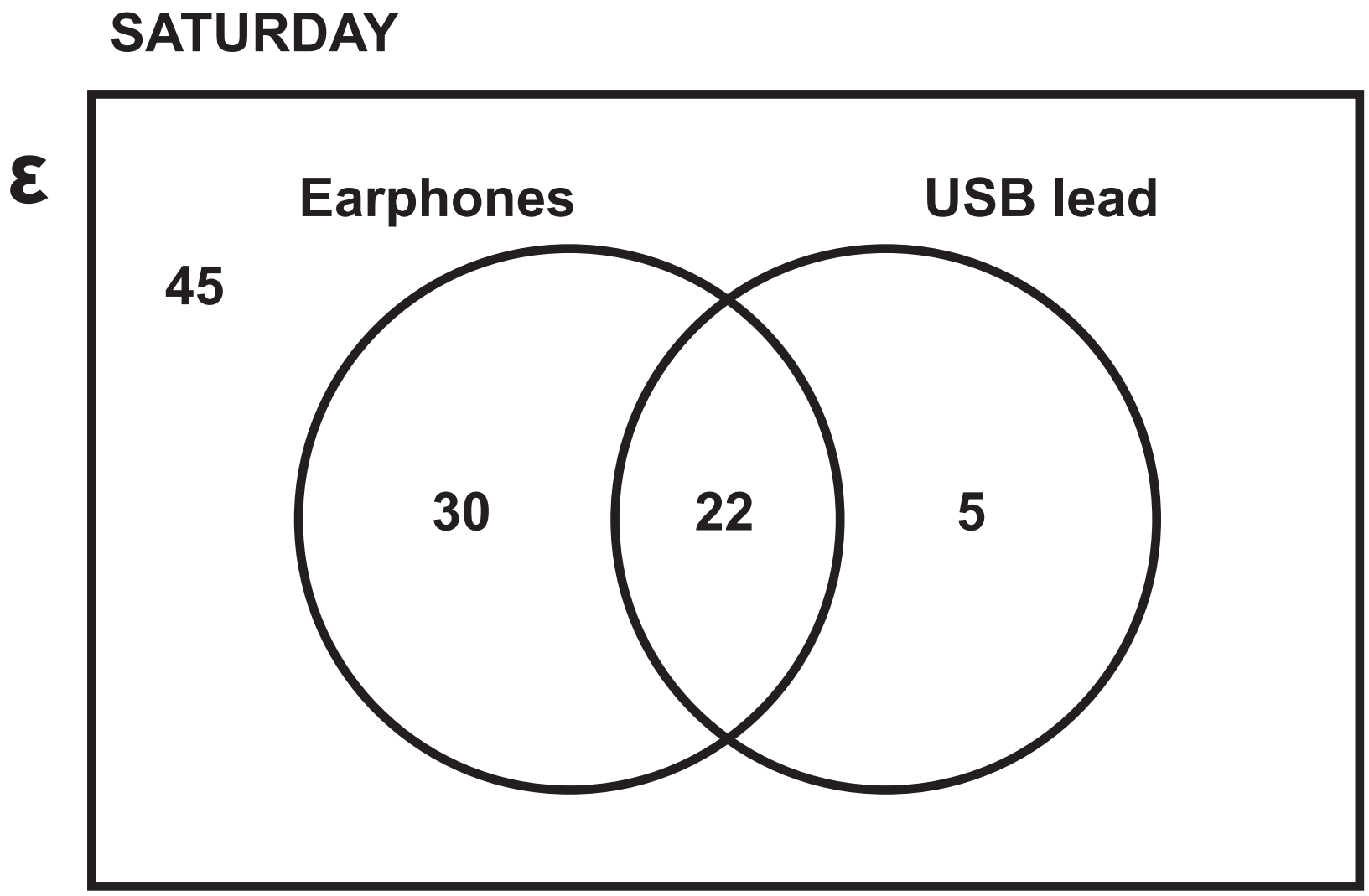
Table

PLAYER	DAYS THEY CAN PLAY	PLAYERS AVAILABLE ON 24TH NOVEMBER
Caroline	Tuesday and Friday	
Tracey	Every day	
Lisa	Weekends	
Sian	Monday, Tuesday and Friday	
Jan	Every day	
Heather	Monday to Friday	
Alys	Wednesday and Friday	
Nafeesa	Tuesday, Friday and Sunday	
Molly	Wednesday and Sunday	
Alicia	Tuesday and weekends	

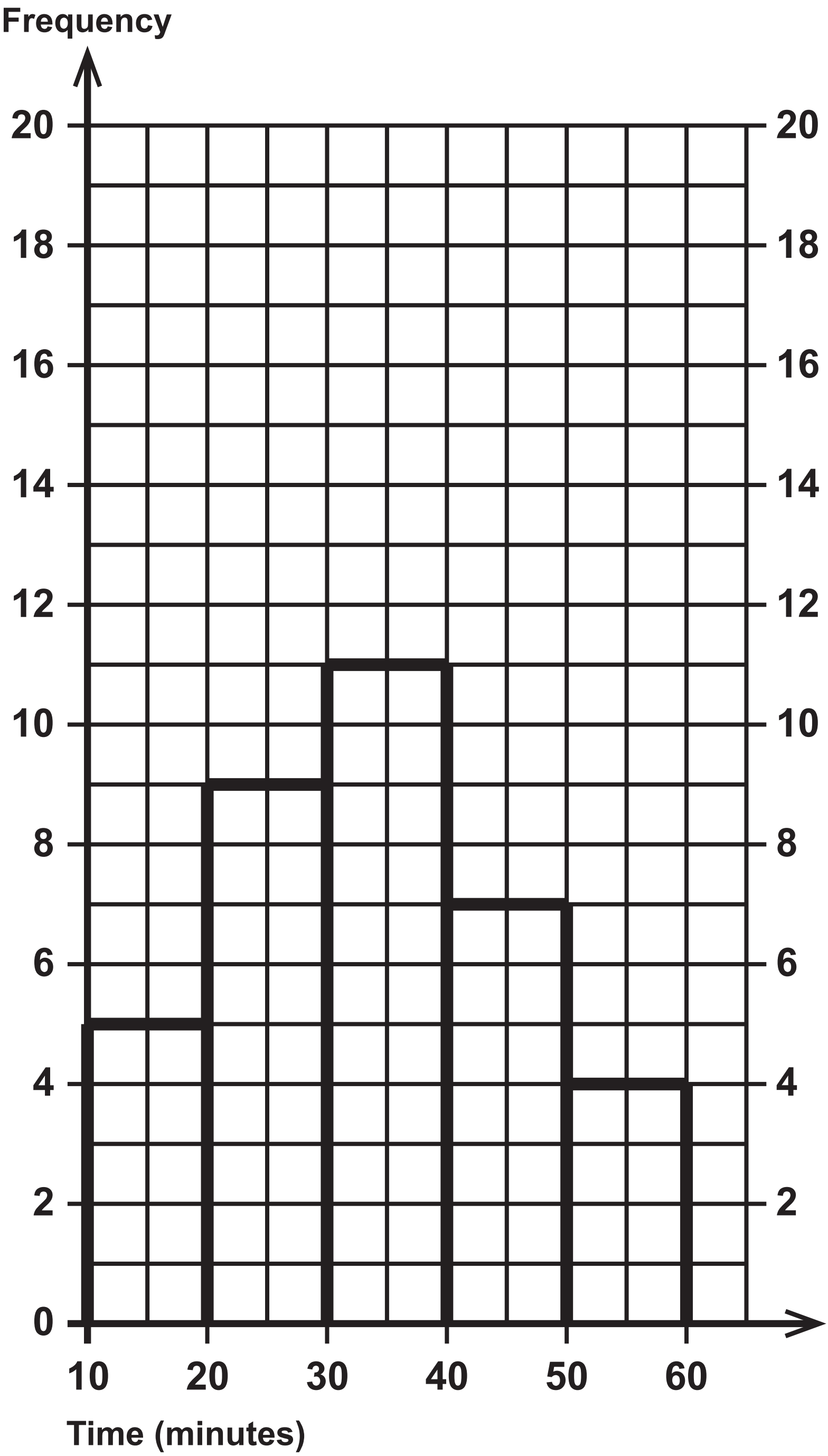
Question 7

Venn diagrams

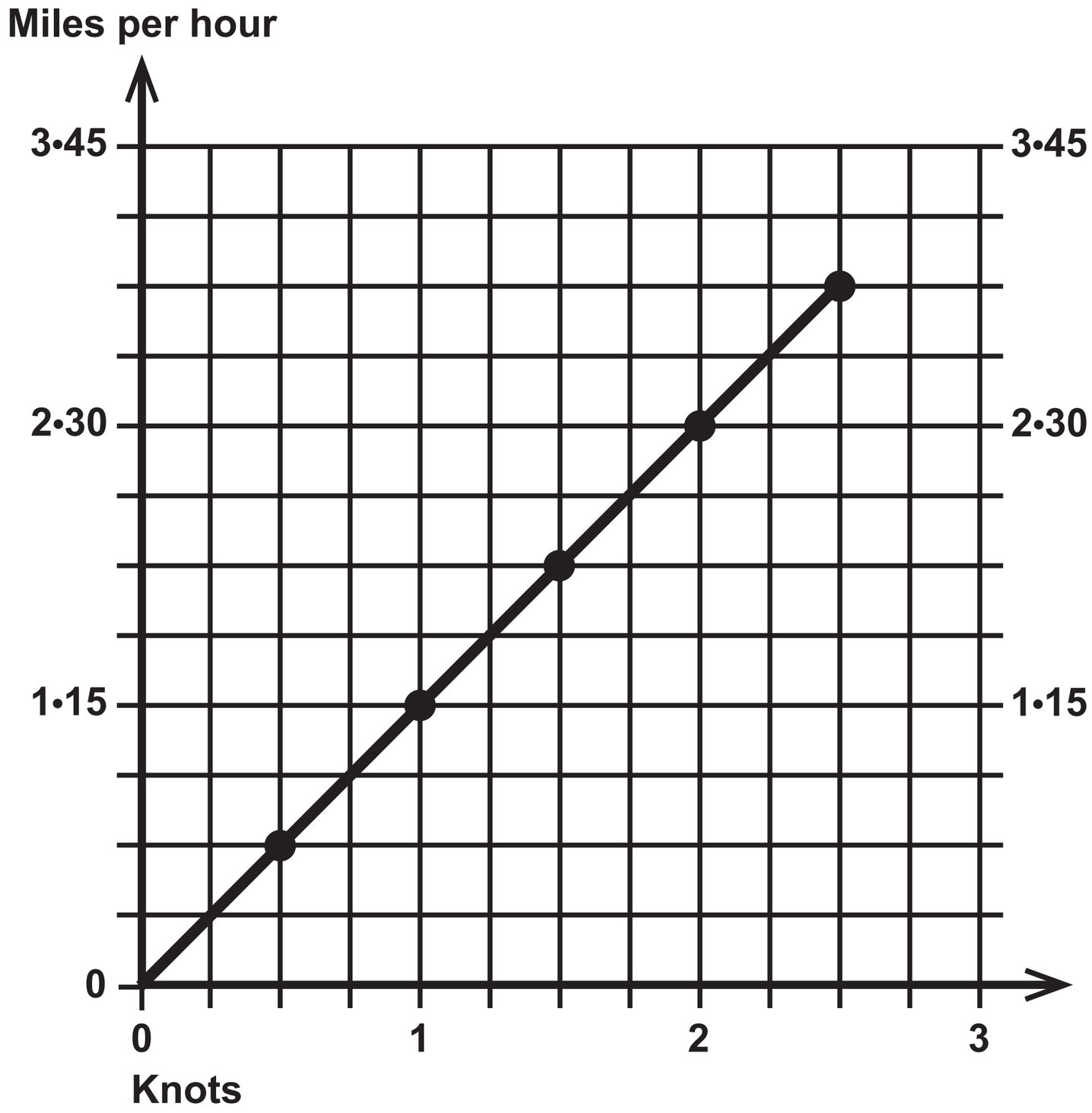




Question 8



Question 9



Question 10

Information

WATER CHARGES

- The waste water output is calculated as 80% of the fresh water usage.
- Fresh water usage costs £1.10 per m^3
- Waste water output costs £1.50 per m^3

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3310U10-1

MATHEMATICS – NUMERACY

UNIT 1: NON – CALCULATOR

FOUNDATION TIER

TUESDAY, 5 NOVEMBER 2019 – MORNING

Spare Diagram Booklet

Surname:	
First name(s):	
Centre Number:	
Candidate Number:	**0**

Question 1

Information

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0 years 4 months	5 years	0 years 9 months
2 years	0 years 4 months	1 year

Question 2 (a) (ii) – Seating plan of the theatre

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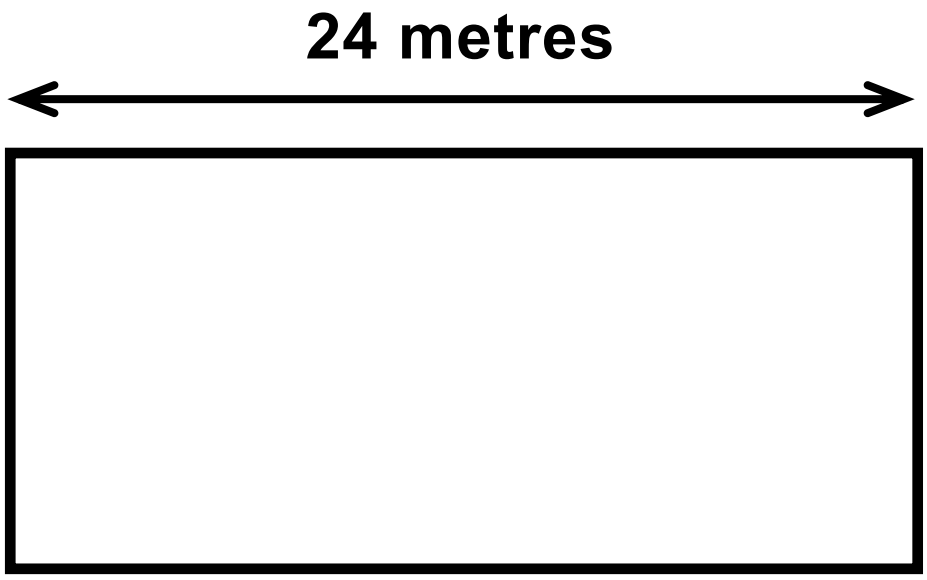
Question 4 (a)



Question 4 (b) (ii)

Calendar

NOVEMBER 2019

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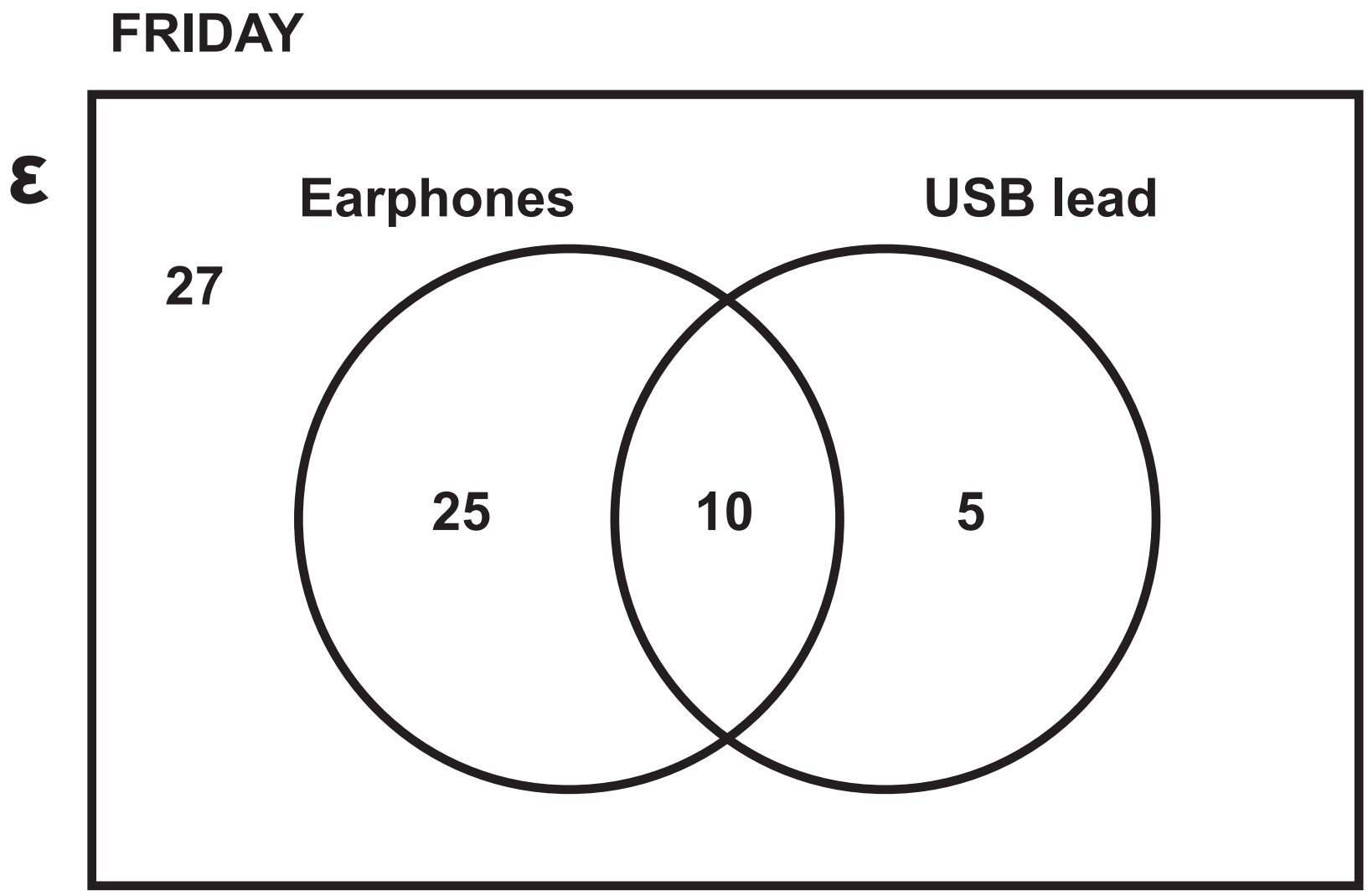
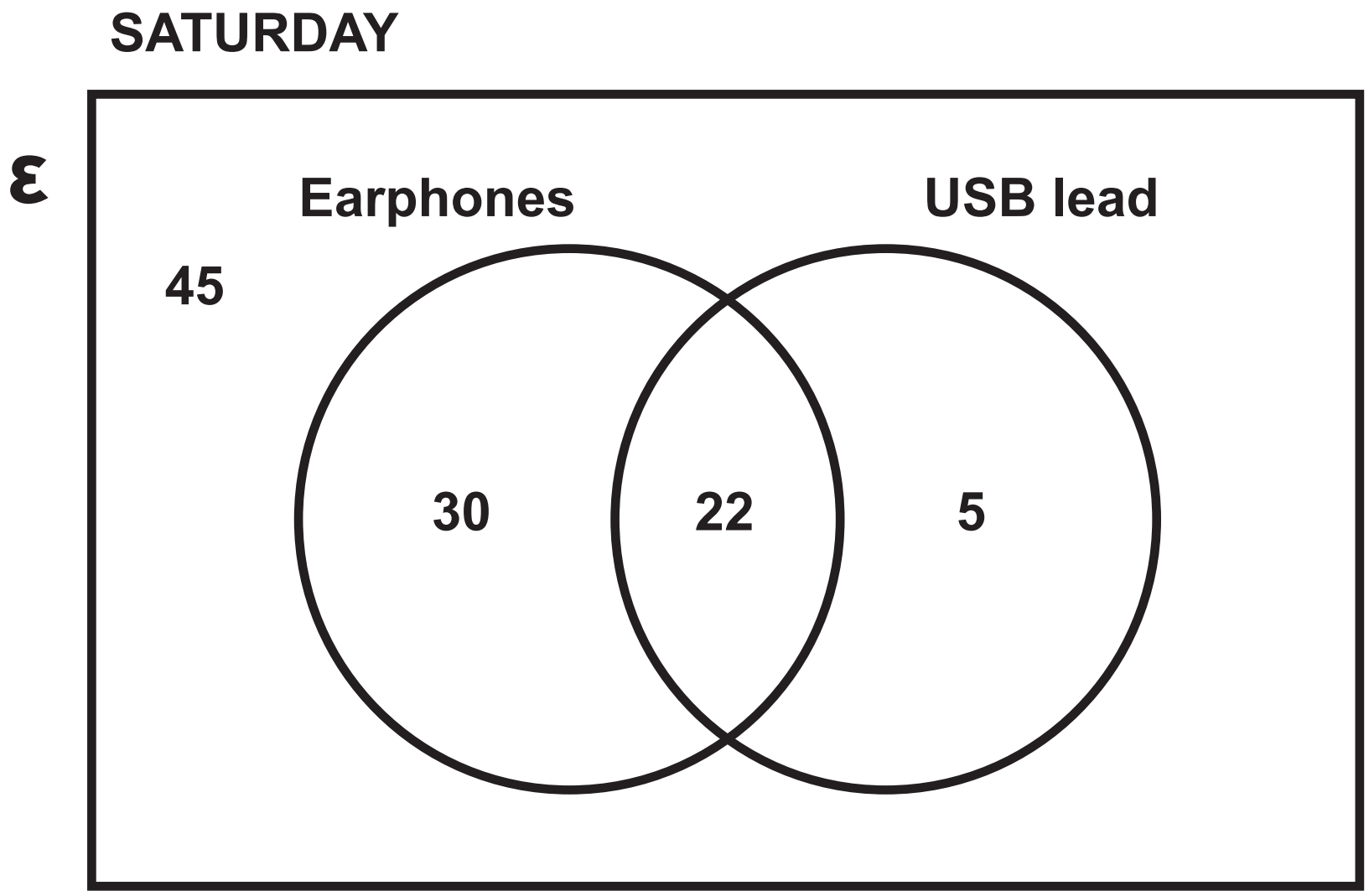
Alicia	Tuesday and weekends	

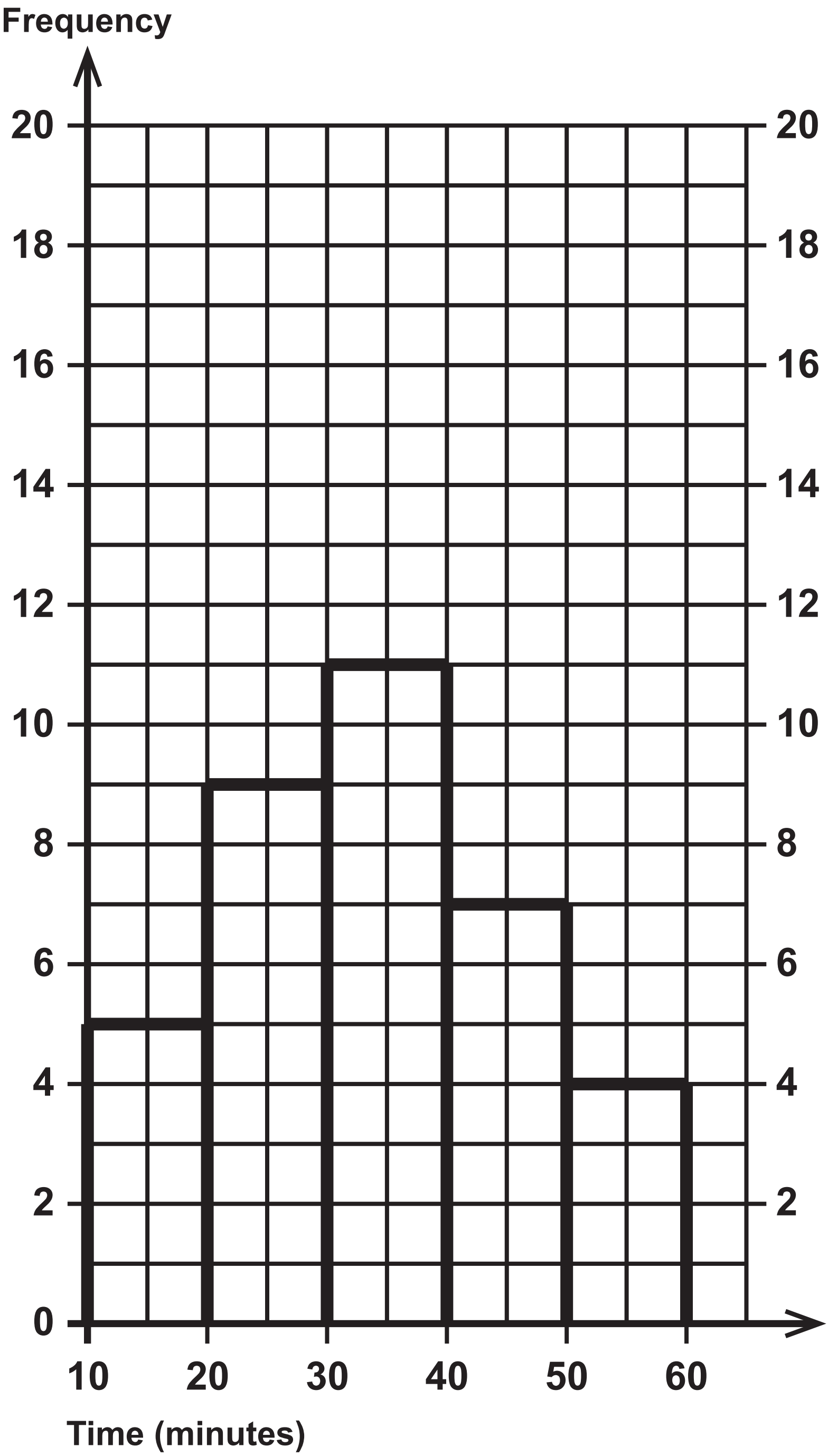
Question 7

Venn diagrams

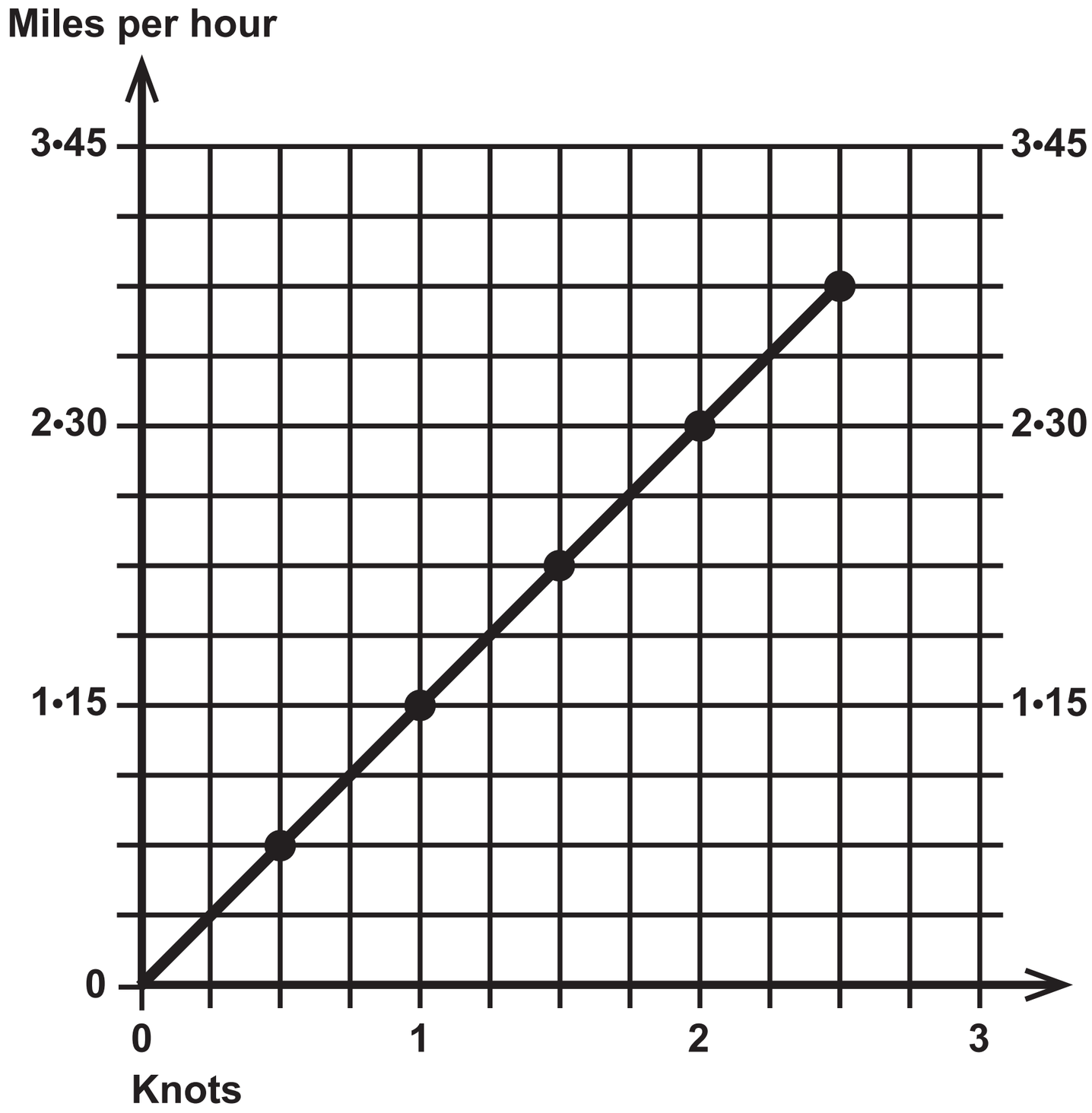




Question 8



Question 9



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MATHEMATICS
and
NUMERACY

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