



GCSE

3310U20-1

WEDNESDAY, 7 JUNE 2023 – 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.	17	
2.	5	
3.	5	
4.	5	
5.	3	
6.	10	
7.	13	
8.	7	
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.

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

(Turn over)

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

The diagram is a map of Wales.

A group of 9 friends from Cardiff raised money for charity.

They took part in the Welsh Three Peaks challenge.

They had to climb the mountains Snowdon, Cader Idris and Pen y Fan in less than 24 hours.

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

The table shows the road distances between the places listed above.

continued on the next page . . .

(Turn over)

Question 1 continued

- 1. (a) What is the distance between Cardiff and Cader Idris?
Circle your answer.**

92 miles	127 miles	42 miles
	69 miles	125 miles

[1 mark]

continued on the next page . . .

(Turn over)

Question 1 continued

1. (b) The friends travelled by minibus from:

- **Cardiff to Snowdon**
- **Snowdon to Cader Idris**
- **Cader Idris to Pen y Fan**
- **Pen y Fan to Cardiff.**

Calculate the total distance the friends travelled by minibus.

(Turn over)

[3 marks]

continued on the next page . . .

(Turn over)

Question 1 continued

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

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

The table shows the team's start times and finish times for the three mountains they climbed.

continued on the next page . . .

(Turn over)

Question 1 (c) continued

**Find the total time the team
spent climbing the three
mountains.**

**Give your answer in hours
and minutes.**

You must show all your working.

(Turn over)

12

(Turn over)

[5 marks + 2 marks OCW]

continued on the next page . . .

(Turn over)

Question 1 continued

- 1. (d) The friends walked a total distance of 31.05 km when climbing the three mountains. They walked 14.6 km when climbing Snowdon. They walked 10 050 m when climbing Cader Idris. Find the distance they walked when climbing Pen y Fan. Write your answer in kilometres. You must show all your working.**

(Turn over)

15

(Turn over)

The distance walked when climbing

Pen y Fan was _____ km

[3 marks]

continued on the next page . . .

(Turn over)

Question 1 continued

- 1. (e) The friends raised the following amounts of money for charity.**

£540 £1452 £53

£28 £280 £350

£300 £500 £340

Mr Morris says,

“I think the mean amount of money raised per person is greater than £400”

continued on the next page . . .

(Turn over)

Question 1 (e) continued

**Show that Mr Morris is correct.
You must show all your working.**

19

[3 marks]

(Turn over)

- 2. Elsie runs dog – boarding kennels, Gwesty Woof.**

There are two different sizes of kennel: large and small.

The kennels have rectangular bases.

- (a) The dimensions of the base of each small kennel are 3.4 m by 1.9 m.**

The dimensions of the base of each large kennel are 5.9 m by 1.9 m.

What is the perimeter of the base of a LARGE kennel?

Perimeter of the base of a large kennel

= _____ m

[2 marks]
(Turn over)

Question 2 continued

- 2. (b) Look at the diagram for Question 2 (b) in the separate Diagram Booklet.**

The diagram shows a plan of some kennels numbered 1, 2, 3, 4, 5, 6, 7 and 8

Six dog owners have booked their dogs into the kennels.

They have sent Elsie the messages shown on the next page.

continued on the next page . . .

(Turn over)

Question 2 (b) continued

Can Annie be in kennel 2 please?

Can Poppy and Chester be in a large kennel together? Can they have the kennel number that's a factor of 12 please?

**Sirius needs a small kennel please.
My favourite number is odd and a multiple of 3**

Finbar. Small kennel. An even square number please.

Macs and Tili can go into a large kennel together. I would like the number of the kennel to be even.

**Howard and Eric together.
Large kennel.
Odd number but can't be opposite to Sirius. They don't get on!**

(Turn over)

Question 2 (b) continued

Using the information in the messages on the previous page, decide which dogs should go into each kennel.

Write the names of the dogs on the plan provided in the separate Diagram Booklet. One has already been completed.

(Turn over)

25

[3 marks]

(Turn over)

3. In 2019, Jeff's salary was £27 000

**Look at the information provided
for Question 3 in the separate
Diagram Booklet.**

**The amounts shown were taken
from his salary.**

Complete the table on page 28.

You must show all your working.

(Turn over)

[illegible]

(Turn over)

Income Tax and National Insurance	£5105
Student Loan repayment	£
Pension Scheme contribution	£
TOTAL	£

[5 marks]

(Turn over)

- 4. Look at the diagrams for Question 4 in the separate Diagram Booklet. There are two diagrams.**

A restaurant uses square tables to seat customers.

Four chairs fit around one table, as shown in Diagram 1.

For groups of more than four customers, tables are arranged in a line.

For example, six chairs fit around two tables, as shown in Diagram 2.

continued on the next page . . .

(Turn over)

Question 4 continued

Look at the formula for Question 4 in the separate Diagram Booklet. The total cost of buying new tables and chairs can be calculated using this formula.

Four new tables are to be arranged in a line.

Calculate the total cost of buying the four tables and the chairs needed for these tables.

You must show all your working.

continued on the next page . . .

(Turn over)

Question 4 continued

SPACE FOR DRAWING:

(Turn over)

[illegible]

(Turn over)

[5 marks]

(Turn over)

- 5. Look at the diagram for Question 5 in the separate Diagram Booklet. The diagram is a conversion graph for Fahrenheit to Celsius.**

Owain has drawn this conversion graph to help him with his homework.

continued on the next page . . .

(Turn over)

Question 5 continued

- 5. (a) Circle the correct answer to complete the following statement.**

15°C in Fahrenheit is

-5°F	59°F	58°F	55°F	66°F
--	--	--	--	--

[1 mark]

continued on the next page . . .

(Turn over)

Question 5 continued

5. (b) Bethan says,

“ 40°C in Fahrenheit is 136°F ,
as it is twice what it is at 20°C ”

Bethan is INCORRECT.

Express 40°C in Fahrenheit.

(Turn over)

37

40° C is _____ ° F

[2 marks]

(Turn over)

- 6. Look at Table 1 and Table 2 for Question 6 in the separate Diagram Booklet.**

In 2018, the costs of making phone calls from the UK to some overseas countries were as shown in the tables.

- (a) (i) Calculate the cost of making a $2\frac{1}{4}$ hour phone call to a mobile in China. Give your answer in pounds.**

(Turn over)

£ _____

[3 marks]

continued on the next page . . .

(Turn over)

Question 6 (a) continued

**6. (a) (ii) A one hour phone call
cost £72**

**Was this call made to a
landline or a mobile?**

**Was this call made to a
country in Band A,**

Band B or Band C ?

**You MUST show all your
working.**

continued on the next page . . .

(Turn over)

Question 6 (a) (ii) continued

Tick (✓) the TWO correct boxes.

Landline☐**Mobile**☐**Band A**☐**Band B**☐**Band C**☐

(Turn over)

[3 marks]

continued on the next page . . .

(Turn over)

Question 6 continued

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

The table gives the exchange rates in September 2018.

A phone call to a landline in Japan cost 2151.30 yen.

Calculate:

- the cost of this phone call, in pounds,**
- how long the phone call lasted, in minutes.**

(Turn over)

Cost £ _____

Phone call lasted _____ **minutes**

[4 marks]

(Turn over)

**7. (a) The Draig Afon youth choir
went on tour.**

**48 people travelled and stayed
in hotels.**

The organiser booked:

- **Gwesty Arwel for 3 nights**
- **Hotel Glan y Môr for
5 nights.**

**Look at the table for
Question 7 (a) in the separate
Diagram Booklet.**

**The table gives the prices per
night for the two hotels.**

continued on the next page . . .

(Turn over)

Question 7 (a) continued

**The Draig Afon youth choir
qualified for the group
booking offer.**

**12 of these people required
single rooms.**

**The other 36 people were
booked into twin rooms.**

**Calculate the total cost of the
8 – night stay for the choir.**

You must show all your working.

(Turn over)

[illegible]

(Turn over)

[illegible]

(Turn over)

[8 marks]

continued on the next page . . .

(Turn over)

Question 7 continued

**7. (b) The Draig Afon youth choir
hired a coach.**

**At the start of the tour, the
coach's display showed it had
travelled 32 474 km.**

**At the end of the tour,
the coach's display showed
33 860 km.**

**The fuel for the coach cost
£1.86 per litre.**

**On average, the coach used
1 litre of fuel for every 4 km
travelled.**

continued on the next page . . .

(Turn over)

Question 7 (b) continued

**Calculate the total cost of the
fuel used for the choir's tour.**

(Turn over)

[5 marks]
(Turn over)

- 8. Look at the diagrams for Question 8 in the separate Diagram Booklet.**

The times it took a group of girls and a group of boys to complete the same puzzle are shown in the frequency diagrams.

continued on the next page . . .

(Turn over)

Question 8 continued

8. (a) Anand says,

**“There are more boys than girls
in these groups.”**

**By showing all your working,
decide if Anand’s statement
is correct or not.**

Correct

☐

Incorrect

☐

(Turn over)

[3 marks]

continued on the next page . . .

(Turn over)

Question 8 continued

- 8. (b) What is the difference between the percentage of girls completing the puzzle in less than 10 seconds and the percentage of boys completing the puzzle in less than 10 seconds? Give your answer correct to one decimal place.**

(Turn over)

57

Difference is _____ %,

correct to one decimal place

[4 marks]

END OF PAPER

TOTAL 65 MARKS

(Turn over)

[illegible]

(Turn over)

[illegible]

(Turn over)

[illegible]

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

**The Diagram Booklet MUST
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and sent for marking.**

Diagram Booklet

Surname: _____

First name(s): _____

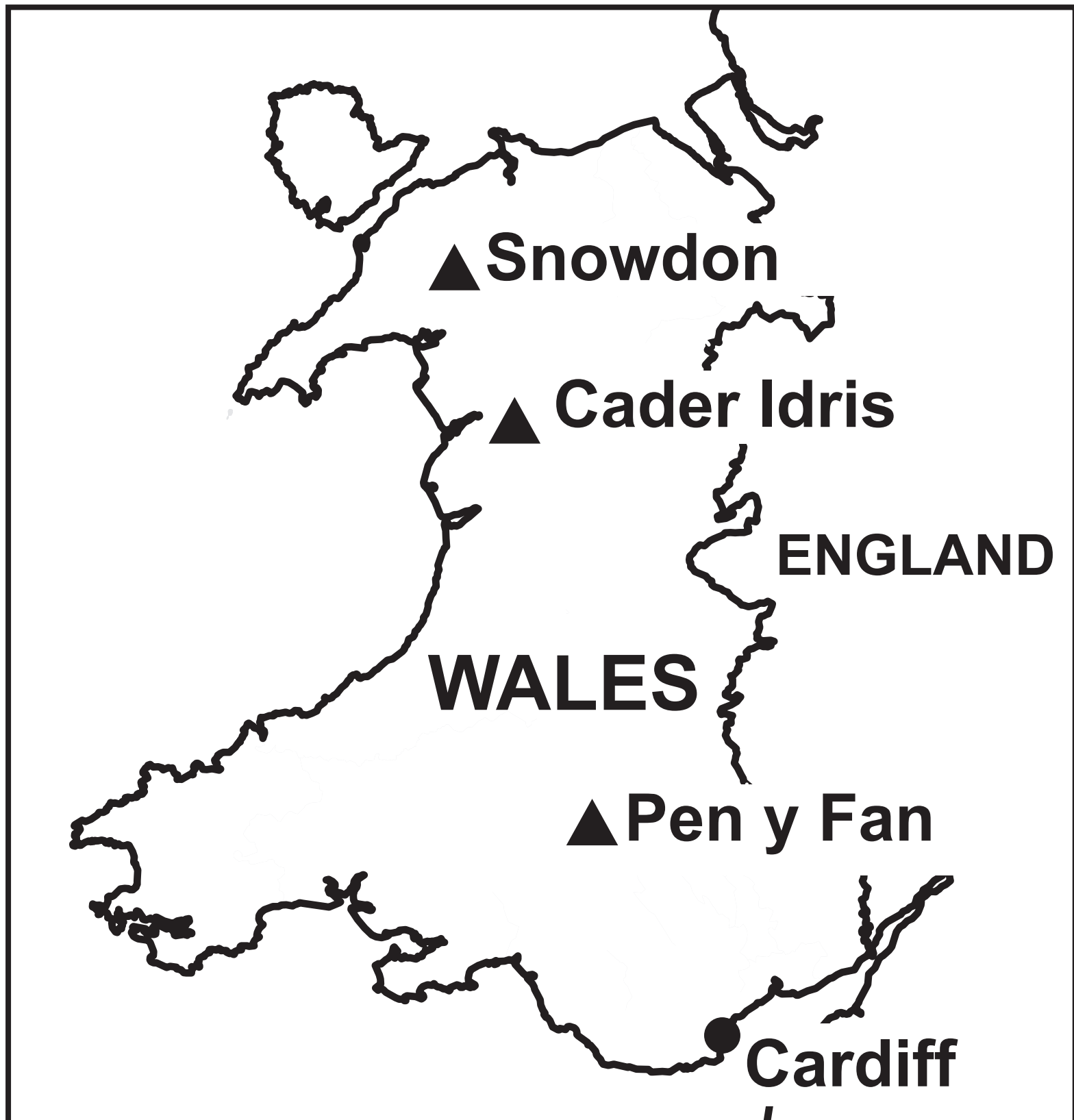
Centre Number: _____

Candidate Number: 0 _____

Question 1

Diagram NOT drawn to scale

Map of Wales



Question 1

Table

CARDIFF			
160 miles	SNOWDON		
127 miles	69 miles	CADER IDRIS	
42 miles	125 miles	92 miles	PEN Y FAN

Question 1 (c)

Table

MOUNTAIN	STARTED CLIMBING	FINISHED CLIMBING
Snowdon	04:00	08:30
Cader Idris	11:00	16:20
Pen y Fan	18:50	21:05

Question 2 (b)

Plan

Kennel 1 Small Kennel	Kennel 2 Small Kennel Annie	Kennel 3 Small Kennel	Kennel 4 Small Kennel
--	--	--	--

Kennel 5 Large Kennel	Kennel 6 Large Kennel	Kennel 7 Large Kennel	Kennel 8 Large Kennel
--	--	--	--

Question 3

Information

Income Tax and National Insurance £5105
Student Loan repayment 4% of his salary
Pension Scheme contribution $\frac{1}{20}$ of his salary

Question 4

Diagram 1

1 table, 4 chairs

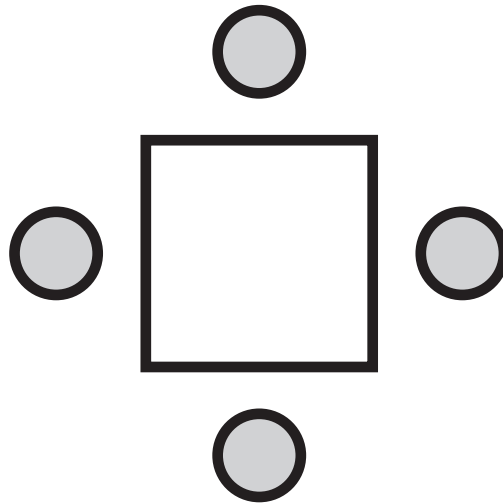
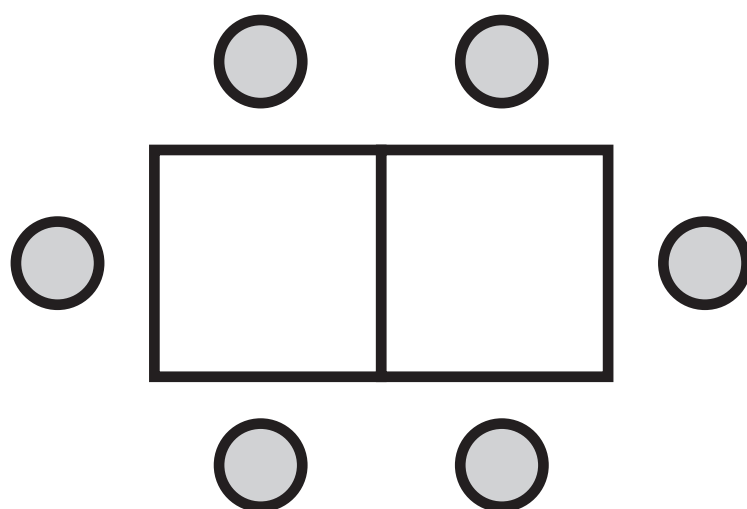


Diagram 2

2 tables, 6 chairs



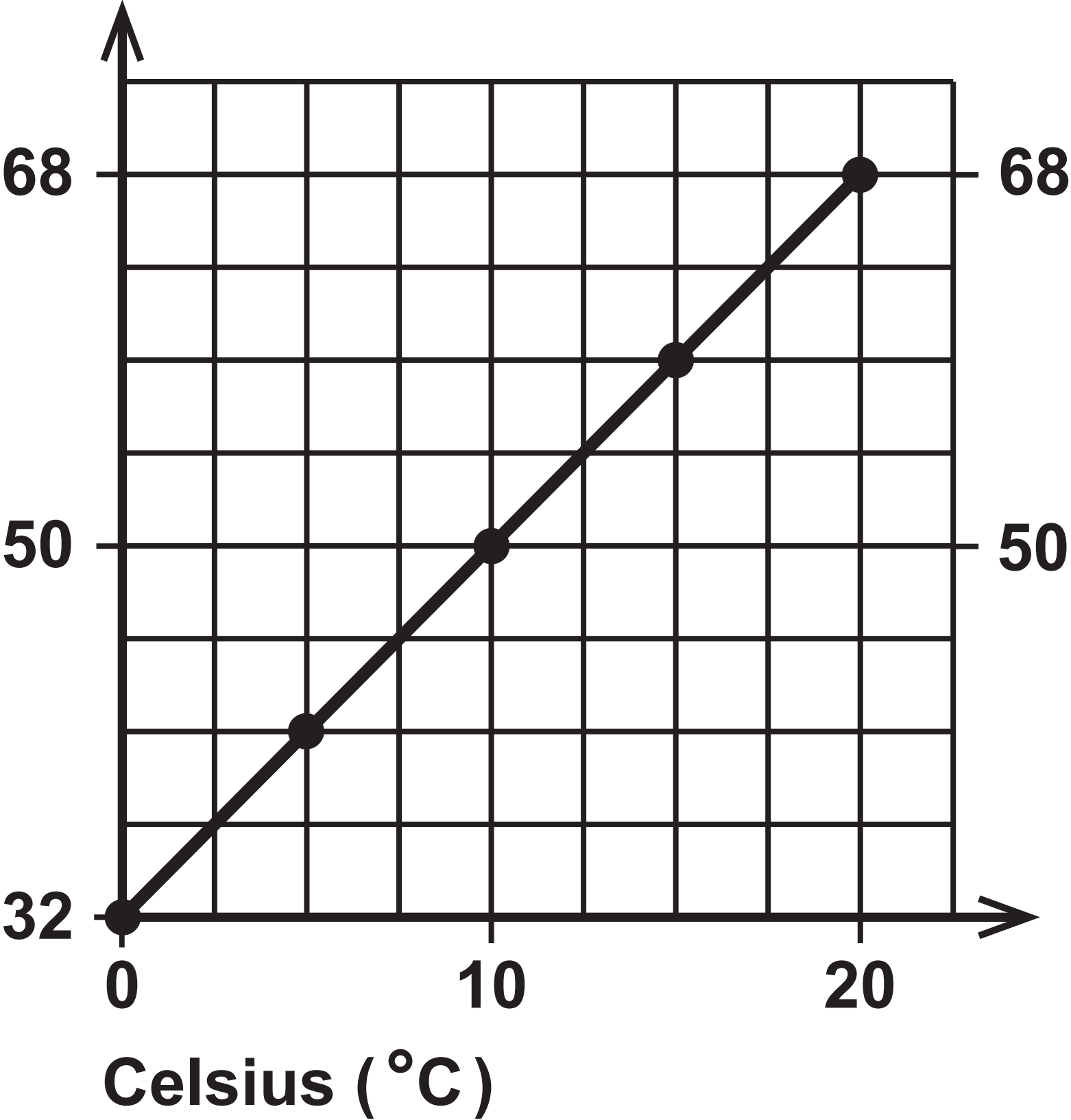
Question 4

Formula

$$\text{Total cost (£)} = \text{number of tables} \times 17.84 + \text{number of chairs} \times 9.47$$

Question 5

Fahrenheit (°F)



Question 6

Table 1

INTERNATIONAL RATE (PENCE PER MINUTE)		
BAND	TO LANDLINES	TO MOBILES
A	30	60
B	60	90
C	120	150

Question 6

Table 2

BAND	COUNTRIES
A	Canada, Hong Kong, Japan
B	Albania, China, Pakistan
C	Argentina, Kenya, Tonga, Zambia

Question 6 (b)

Information

£1 exchange rate	Japan 143.42 yen
	Pakistan 159.21 rupees
	Argentina 47.85 peso
	Tonga 2.96 pa'anga

Question 7 (a)

Table

GWESTY ARWEL

Single room £84

Twin room £102
(total cost for
two people)

Group bookings get
a discount of 14%

HOTEL GLAN Y MÔR

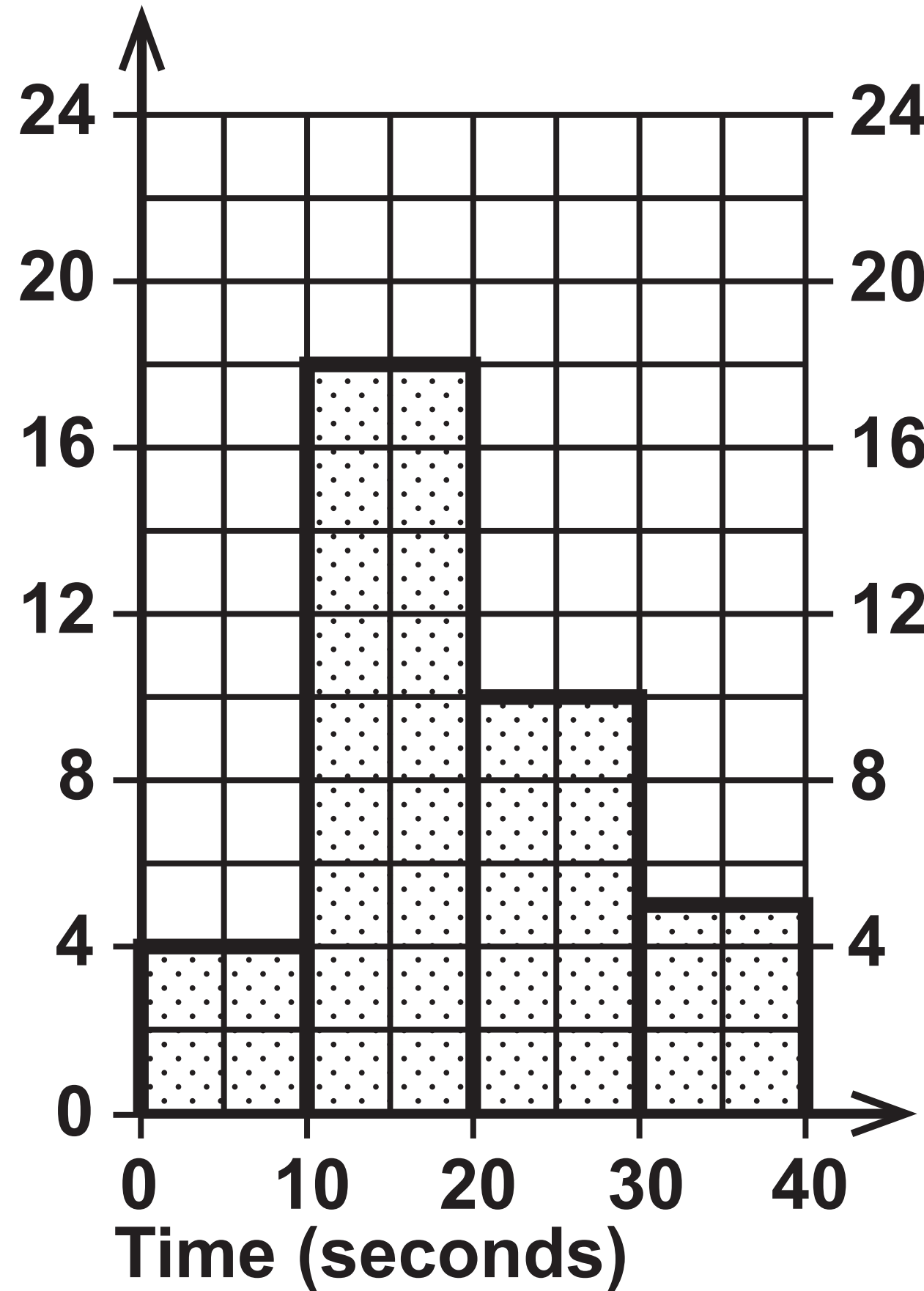
Single room £58

Twin room £34
per person

Question 8

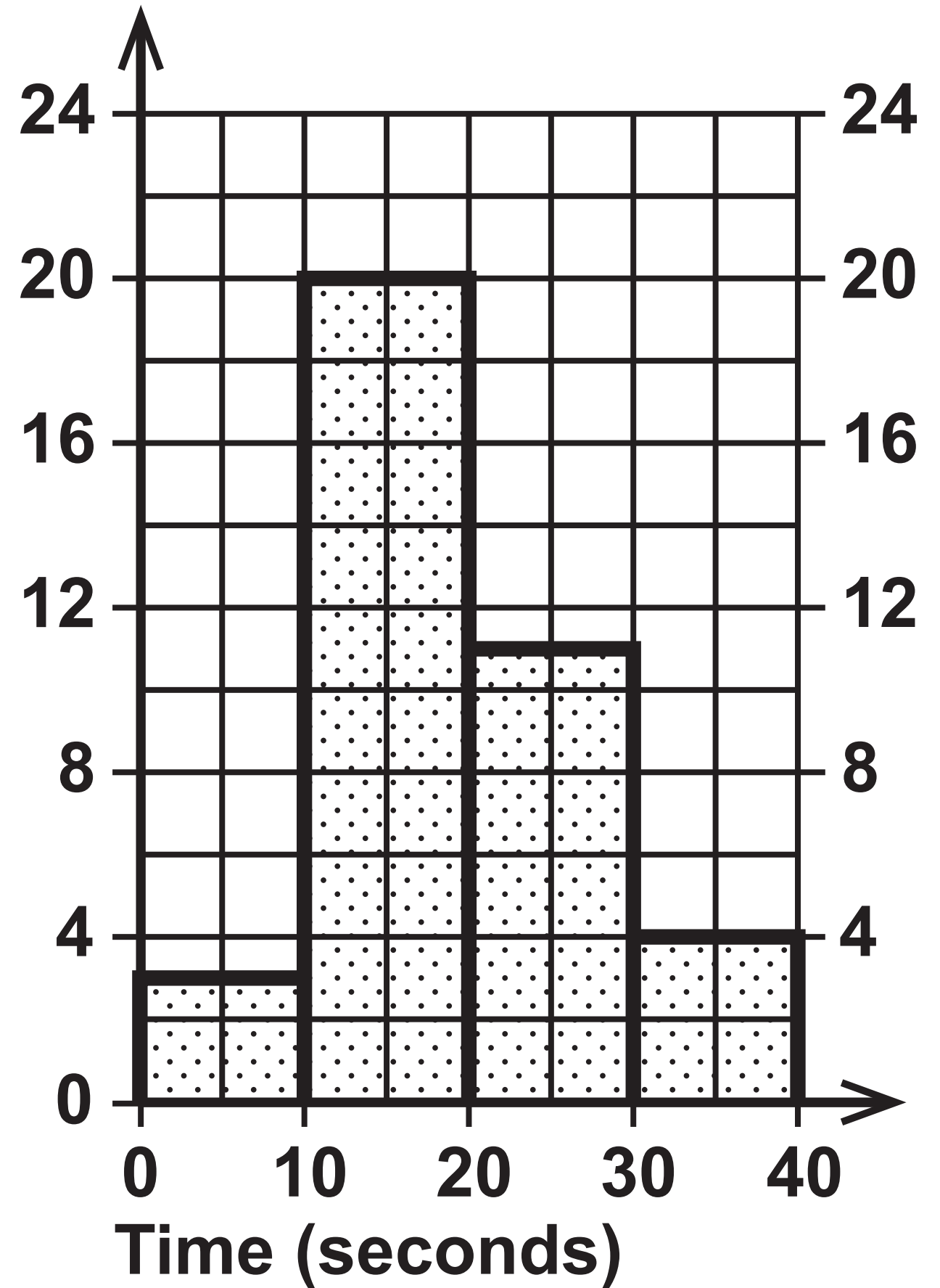
GIRLS' TIMES

Frequency



BOYS' TIMES

Frequency



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

