



GCSE

3310U40-1

WEDNESDAY, 7 JUNE 2023 – MORNING

MATHEMATICS – NUMERACY

UNIT 2: CALCULATOR – ALLOWED

INTERMEDIATE TIER

1 hour 45 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.	3	
2.	12	
3.	15	
4.	8	
5.	7	
6.	7	
7.	4	
8.	13	
9.	7	
10.	4	
Total	80	

(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 9.

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

1. Look at the diagram for Question 1 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.

- (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
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[1 mark]

continued on the next page . . .

(Turn over)

Question 1 continued

1. (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.

40°C is _____ $^{\circ}\text{F}$

[2 marks]

(Turn over)

2. Look at Table 1 and Table 2 for Question 2 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.

£ _____

[3 marks]

continued on the next page . . .

(Turn over)

Question 2 (a) continued

2. (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.

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 2 continued

2. (b) The table below gives the exchange rates in September 2018.

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

- (i) A phone call to Argentina cost **£6**

How much did this phone call cost in pesos?

_____ pesos

[2 marks]

(Turn over)

Question 2 (b) continued

2. (b) (ii) 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.**

Cost £ _____

Phone call lasted _____ minutes

[4 marks]

(Turn over)

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

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 3 (a) in the separate Diagram Booklet.

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

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.

continued on the next page . . .

(Turn over)

Question 3 continued

3. (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.

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

4. (a) Llandudno Pier is **700 m** long.

What is the length of Llandudno Pier
in feet?

You must use the following conversions.

<p>12 inches = 1 foot</p> <p>1 inch \approx 2.5 cm</p>

[3 marks]

continued on the next page . . .

(Turn over)

Question 4 continued

4. (b) Southend Pier is the longest pleasure pier in the world.

It is 1.34 miles long.

Gareth walks at a steady pace along Southend Pier.

He walks 84 metres every minute.

He starts walking along the length of the pier at 2 p.m.

At what time does Gareth reach the end of the pier?

Give your time correct to the nearest minute.

You must show all your working.

5. Look at the diagrams for Question 5 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.

(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

[3 marks]

(Turn over)

Question 5 continued

- 5. (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.

Difference is _____ %, correct to one decimal place

[4 marks]

(Turn over)

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

The table gives the heights of the **27** musicians in the Camwen Youth Orchestra.

(a) (i) In which group does the median height of a musician lie?
You must give a reason for your answer.

Group: _____

Reason: _____

[2 marks]

continued on the next page . . .

(Turn over)

Question 6 (a) continued

6. (a) (ii) Is it certain that there is at least one musician in the orchestra who is less than **154 cm** tall?

Give a reason for your answer.

Yes

No

[1 mark]

continued on the next page . . .

(Turn over)

7. Layla has been set a target by her fitness trainer.

Every day, Layla has to increase the number of steps she does.

Today, Layla did 1800 steps.

Layla's target for the number of steps per day:

Increase by 2% every day for the next 28 days

Calculate the number of steps Layla's trainer is expecting her to do on the last of these 28 days.

[4 marks]

(Turn over)

8. Paper comes in standard sizes.

Look at the table for Question 8
in the separate Diagram Booklet.

(a) Which paper size has an area of
approximately $500\,000\text{ mm}^2$?

Circle your answer.

A0	A1	A2	A3	A4
----	----	----	----	----

[1 mark]

continued on the next page . . .

(Turn over)

Question 8 continued

8. (b) The mass of paper is measured in grams. The quality of paper is given by its mass per square metre of paper.

The quality of a sheet of **A2** paper used for printing is stated as **120 g/m²**

Complete the following statement.

'This sheet of **A2** paper has a mass of _____ g.'

[4 marks]

continued on the next page . . .

(Turn over)

[5 marks]

continued on the next page . . .

(Turn over)

Question 8 continued

8. (d) The measurements for the **A1** sheet of paper in the table are correct to the nearest **mm**.

Calculate the greatest possible perimeter of an **A1** sheet of paper.

[3 marks]

(Turn over)

- 9. Look at the table for Question 9 in the separate Diagram Booklet.**

The cost of sending a package depends on its volume. This is shown in the table.

Ask for the model for Question 9.

The model is NOT made to scale.

The model represents a package.

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

The diagram is NOT drawn to scale.

The diagram shows the front face of the package.

A rectangular 'HANDLE WITH CARE' label is stuck on this package.

The label measures 17.5 cm by 11.1 cm.

The package is a cuboid with height 19 cm and width 6.7 cm.

Each vertex of the label touches an edge of the front face of the package.

continued on the next page . . .

(Turn over)

[4 marks]

END OF PAPER

TOTAL 80 MARKS

(Turn over)



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INTERMEDIATE TIER

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Diagram Booklet

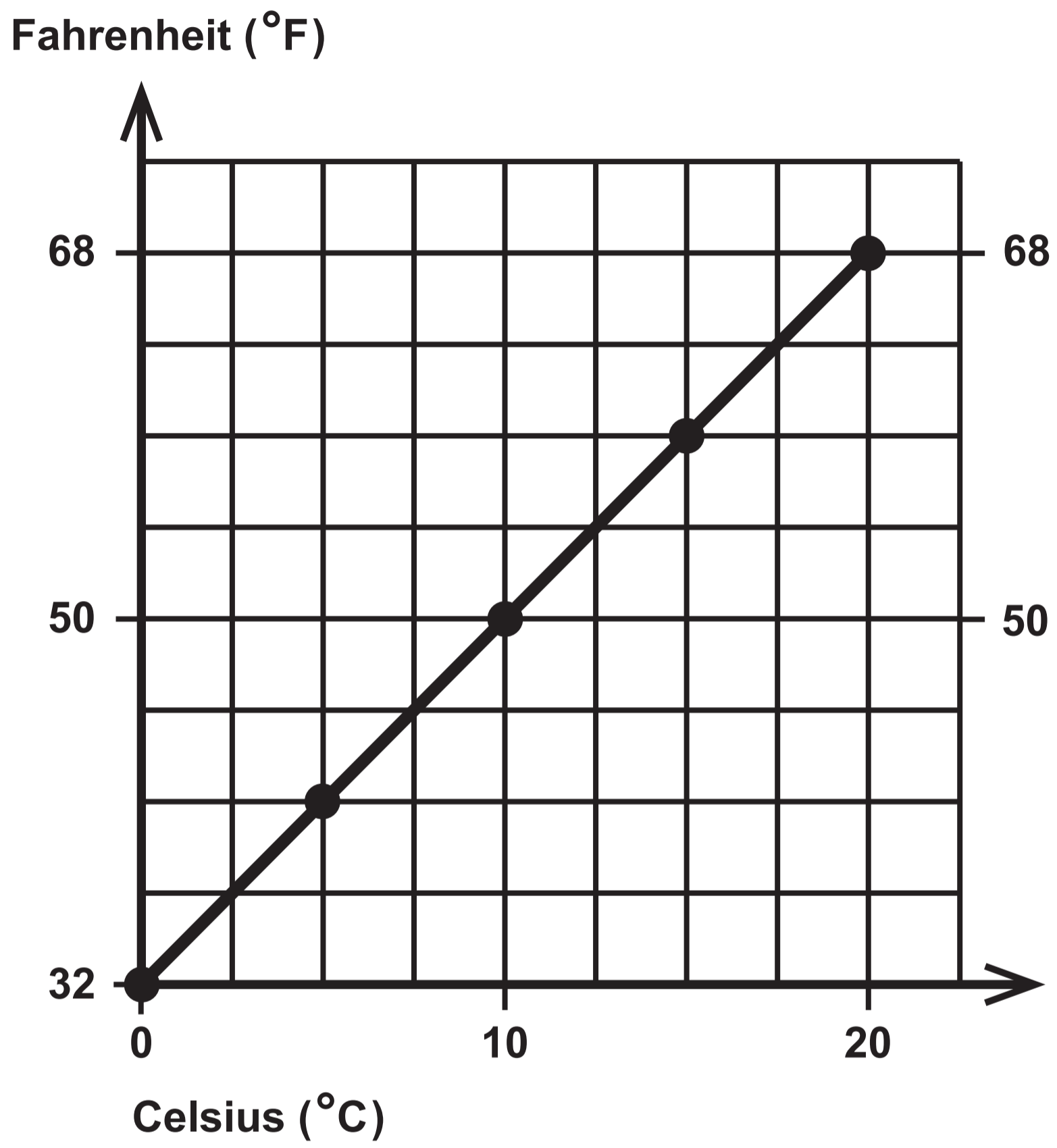
Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

Question 1



Question 2

Table 1

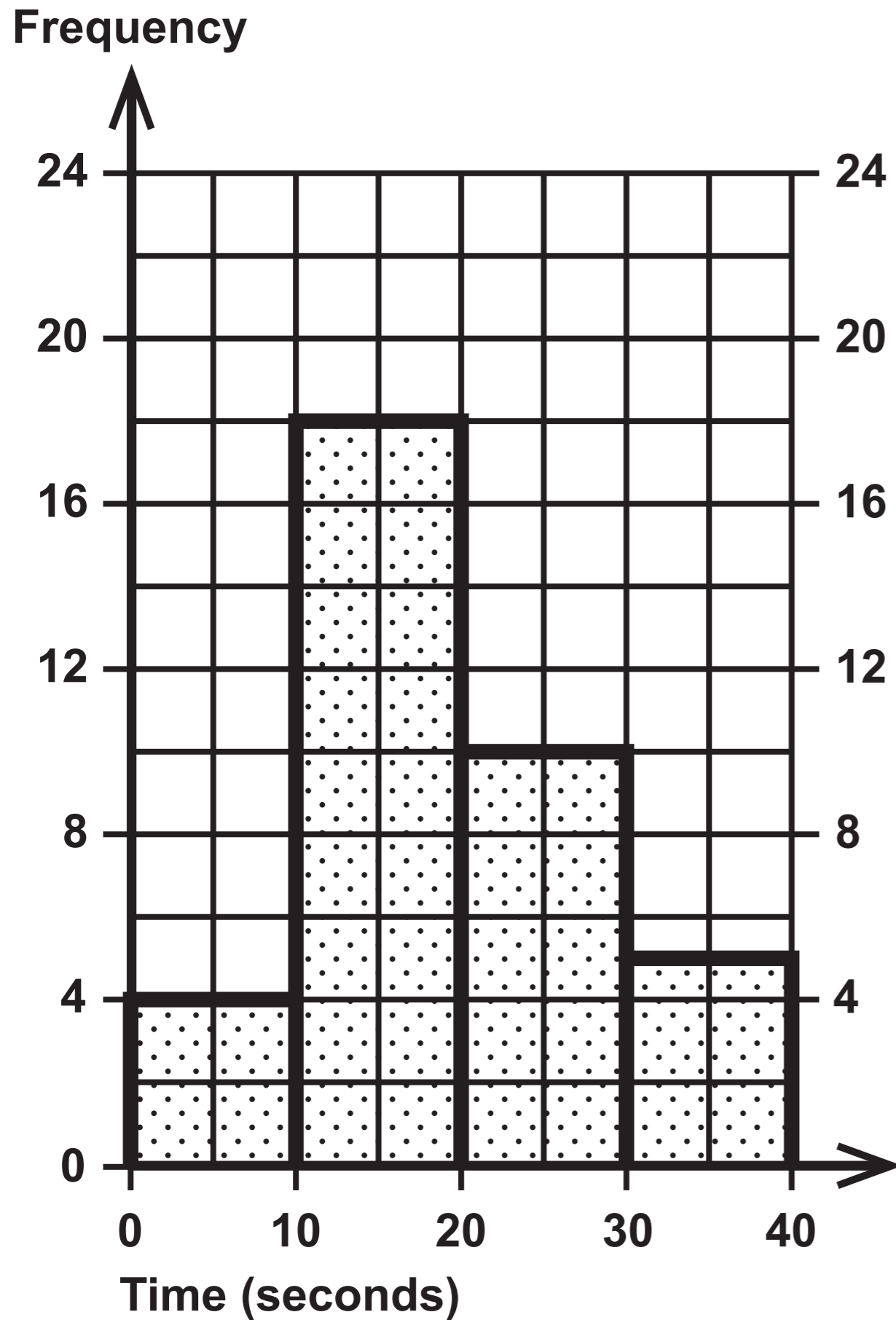
INTERNATIONAL RATE (PENCE PER MINUTE)		
BAND	TO LANDLINES	TO MOBILES
A	30	60
B	60	90
C	120	150

Table 2

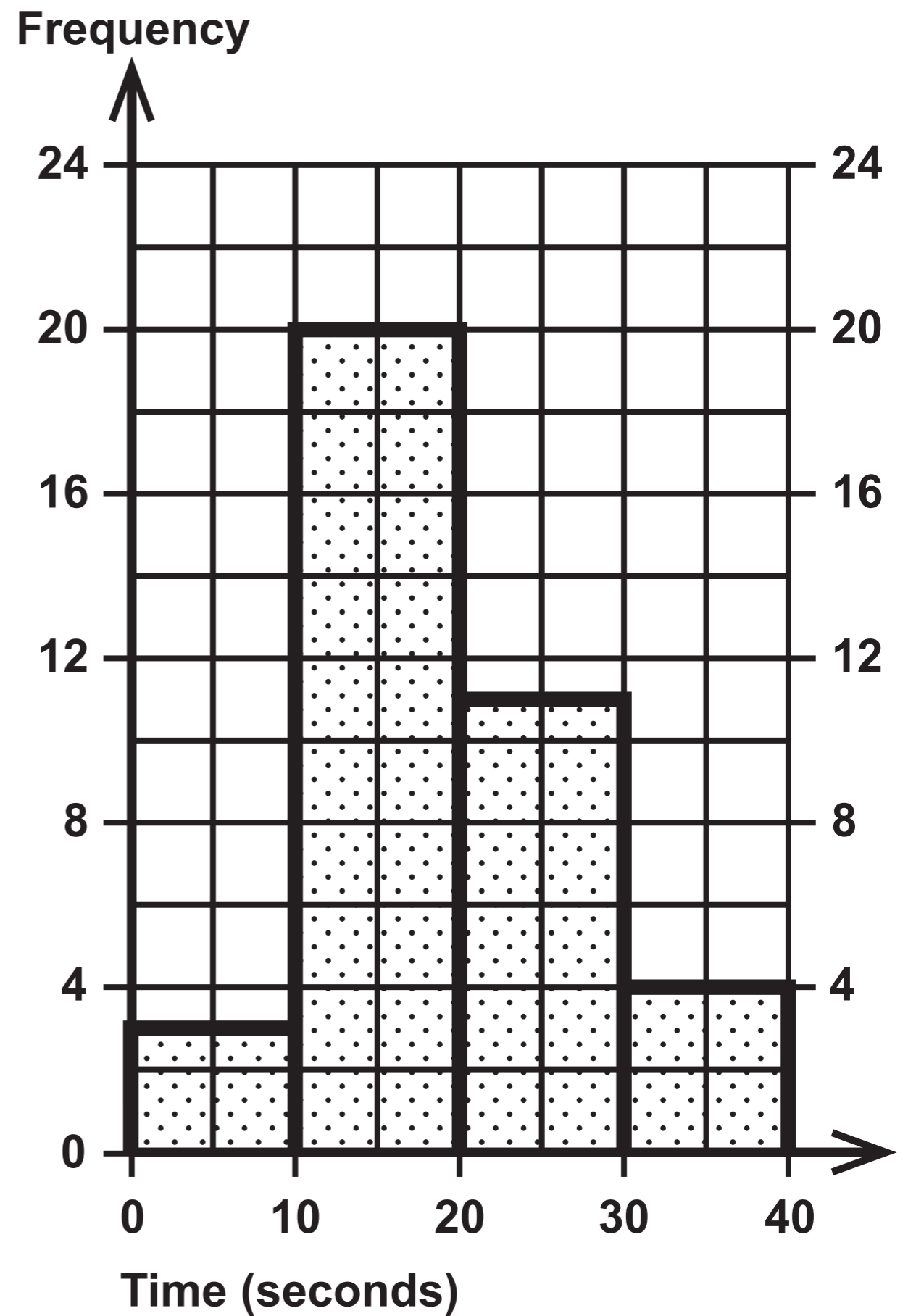
BAND	COUNTRIES
A	Canada, Hong Kong, Japan
B	Albania, China, Pakistan
C	Argentina, Kenya, Tonga, Zambia

Question 5

GIRLS' TIMES



BOYS' TIMES



Question 6

Table

Height, h cm	Frequency
$150 \leq h < 158$	3
$158 \leq h < 166$	10
$166 \leq h < 174$	9
$174 \leq h < 182$	4
$182 \leq h < 190$	0
$190 \leq h < 198$	1

Question 8

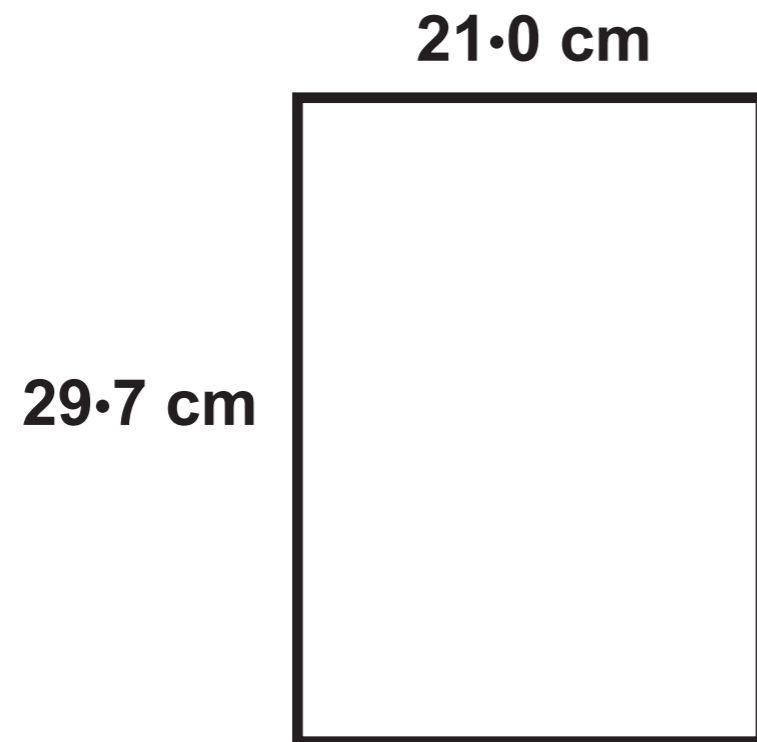
Table

Paper size		A0	A1	A2	A3	A4
Dimensions:	Length (cm)	118.9	84.1	59.4	42.0	29.7
	Width (cm)	84.1	59.4	42.0	29.7	21.0

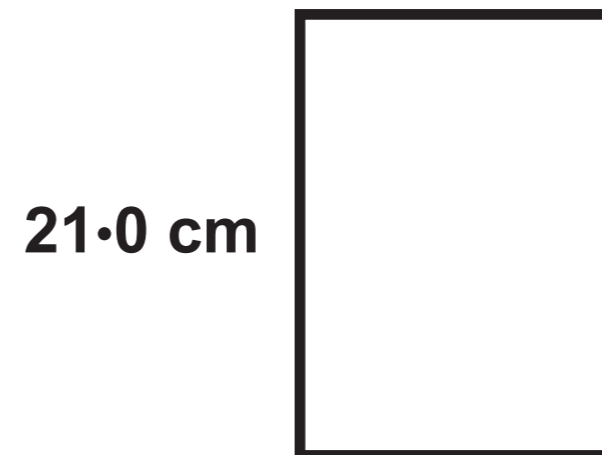
Question 8 (c)

Diagram NOT drawn to scale

A4 PAPER



A5 PAPER



Question 9

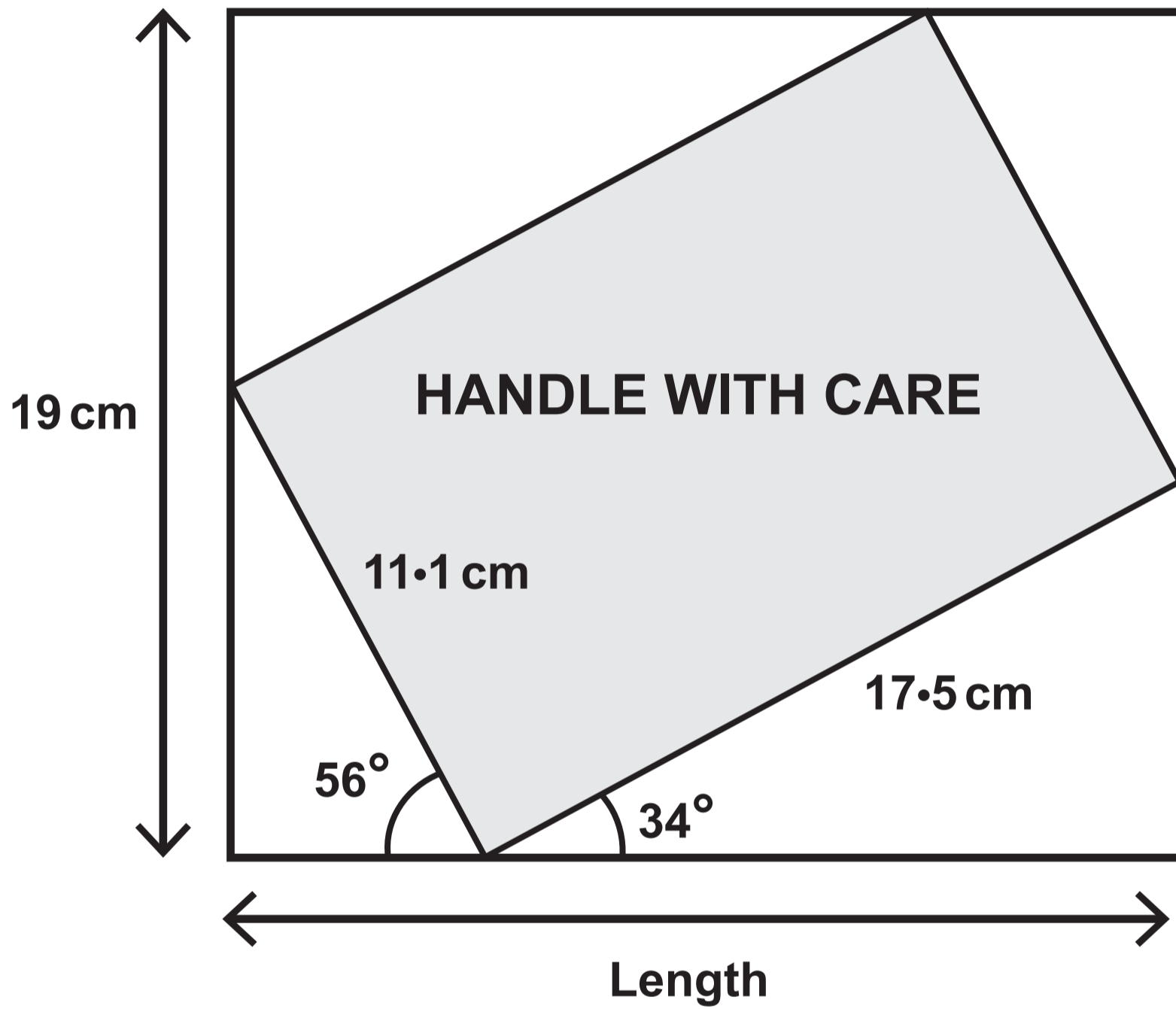
Table

VOLUME (cm³)	COST
0 to 1000	£12.55
greater than 1000, up to 2000	£13.60
greater than 2000, up to 4000	£14.85
greater than 4000, up to 10 000	£16.25
Parcels with volume greater than 10 000 cm³ are not accepted	

Question 9

Diagram NOT drawn to scale

Front face of the package



**GCSE
MATHEMATICS
and
NUMERACY**



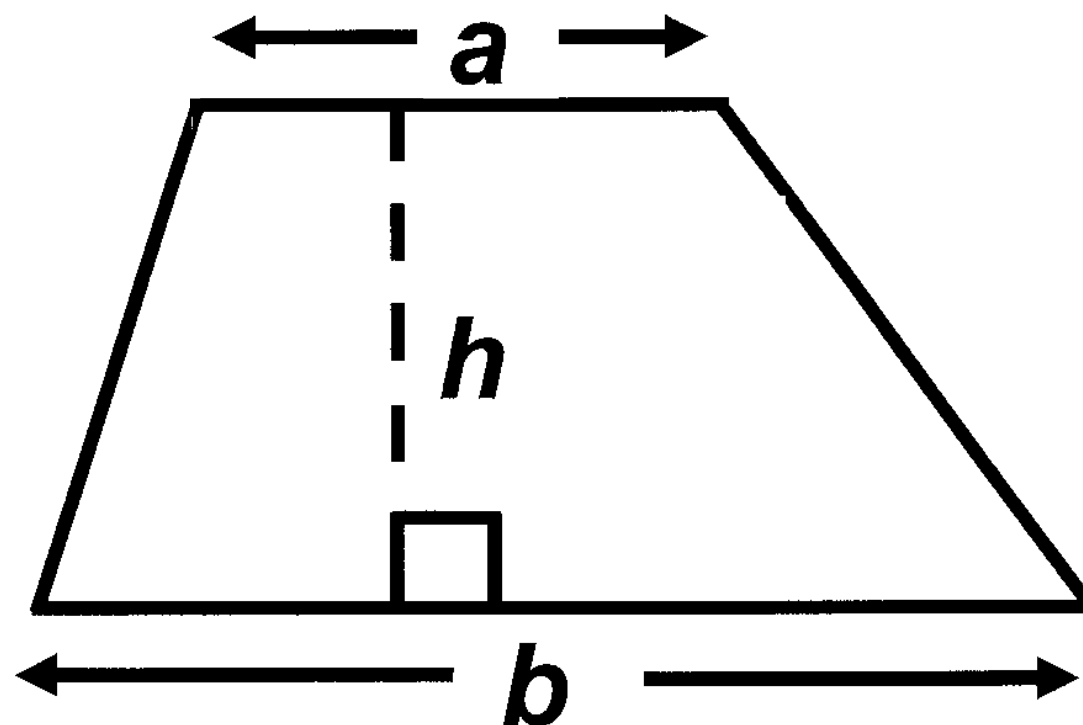
**FORMULA LIST
INTERMEDIATE TIER
GCSE**

You must not write on these formula pages.

Anything you write on these formula pages will gain NO credit.

Formula List – Intermediate Tier

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



Volume of prism =
area of cross – section \times length

