

Surname	Centre Number	Candidate Number
First name(s)		0



GCSE

3310U20-1



S23-3310U20-1

WEDNESDAY, 7 JUNE 2023 – MORNING

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

1 hour 30 minutes

ADDITIONAL MATERIALS

A calculator will be required for this paper.

A ruler, a protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

If you run out of space, use the additional page at the back of the booklet. Question numbers must be given for the work written on the additional page.

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

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	

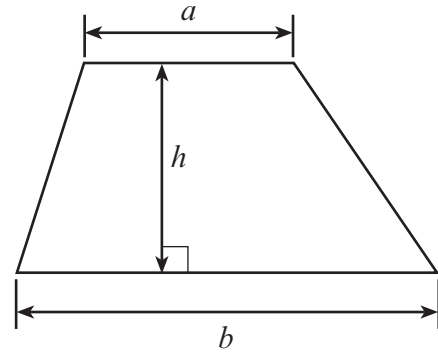
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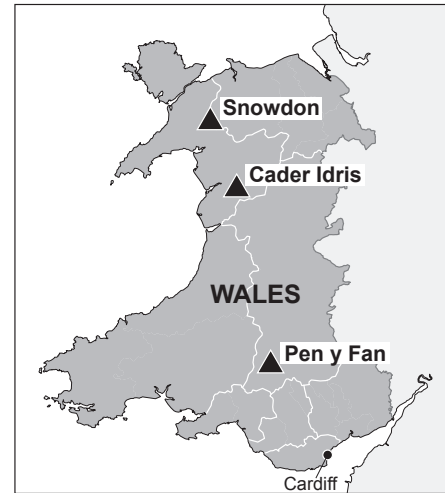
Formula List – Foundation Tier

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



1. 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.

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



Cardiff				
160 miles	Snowdon			
127 miles	69 miles	Cader Idris		
42 miles	125 miles	92 miles	Pen y Fan	

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

[1]

92 miles 127 miles 42 miles 69 miles 125 miles

- (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.

[3]

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- Here are the team's start times and finish times for the three mountains they climbed.

Find the total time the team spent climbing the three mountains.
Give your answer in hours and minutes.
You must show all your working.

[5 + 2 OCW]



- (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.

[3]

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The distance walked when climbing Pen y Fan was km

- (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."

Show that Mr Morris is correct.

You must show all your working.

[3]

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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?

[2]

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Perimeter of the base of a large kennel = m



- (b) Six dog owners have booked their dogs into the kennels. They have sent Elsie the messages below. Using the information in the messages, decide which dogs should go into each kennel. Write the names of the dogs on the plan below. One has already been completed. [3]

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 directly opposite to Sirius. They don't get on!

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

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3. In 2019, Jeff's salary was £27 000.
The following amounts were taken from his salary.

**Income Tax and
National Insurance
£5105**

**Student Loan
repayment
4% of his salary**

**Pension Scheme
contribution
 $\frac{1}{20}$ of his salary**

Complete the table below.
You must show all your working.

[5]

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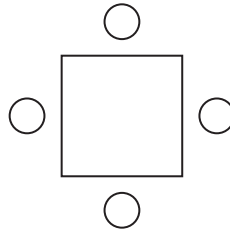
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Income Tax and National Insurance	£ 5105
Student Loan repayment	£
Pension Scheme contribution	£
Total	£



4. A restaurant uses square tables to seat customers.
Four chairs fit around one table, as shown in the diagram below.

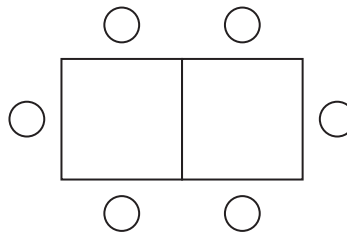
1 table 4 chairs



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

For example, six chairs fit around two tables, as shown in the diagram below.

2 tables 6 chairs



The total cost of buying new tables and chairs can be calculated using the formula:

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

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.

[5]

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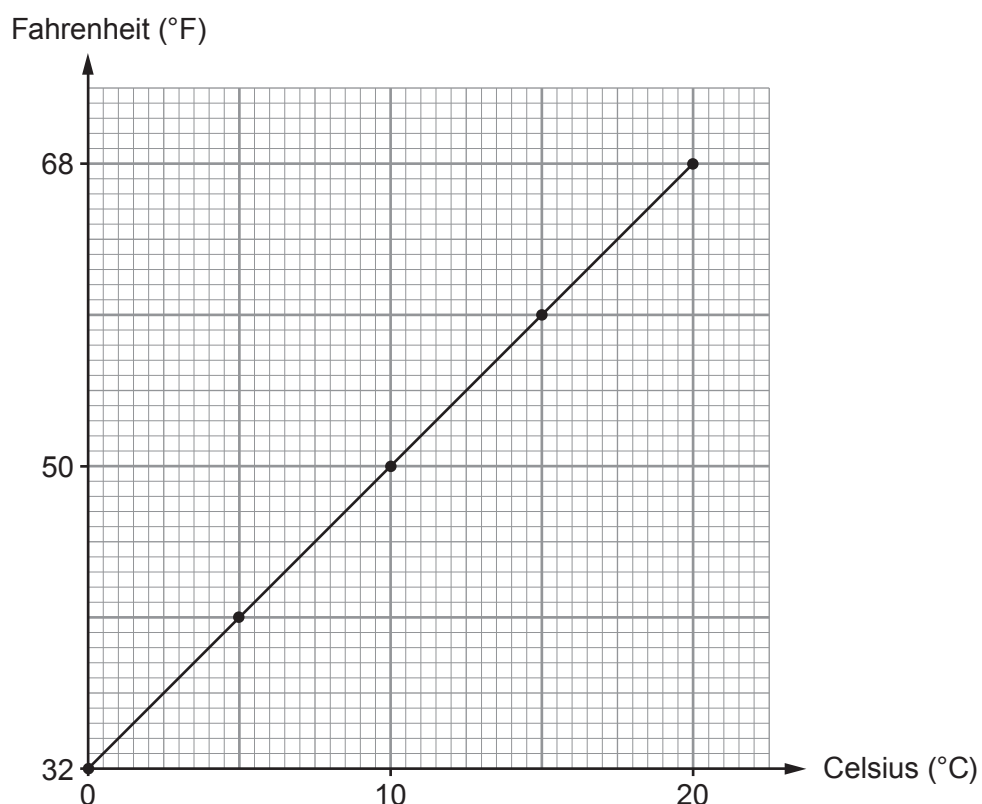


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5. Owain has drawn a conversion graph to help him with his homework.



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

[1]

15°C in Fahrenheit is

-5°F

59°F

58°F

55°F

66°F

- (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.

[2]

40°C is °F



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

International rate (pence per minute)		
Band	To landlines	To mobiles
A	30	60
B	60	90
C	120	150

Band	Countries
A	Canada, Hong Kong, Japan
B	Albania, China, Pakistan
C	Argentina, Kenya, Tonga, Zambia

- (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]

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£

- (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. [3]

Tick (✓) the **two** correct boxes.

Landline

☐

Mobile

☐

Band A

☐

Band B

☐

Band C

☐

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- (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

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.

[4]

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Cost £

Phone call lasted minutes



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

[8]



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- (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.

[5]

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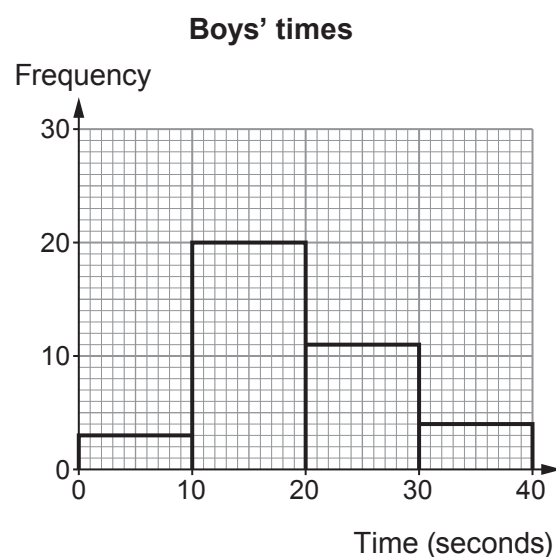
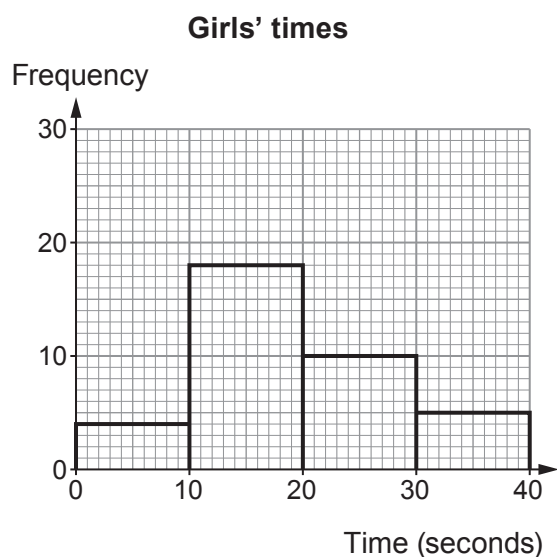
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8. The times it took a group of girls and a group of boys to complete the same puzzle are shown in the frequency diagrams below.



- (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.

[3]

Correct

☐

Incorrect

☐

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- (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.

[4]

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Difference is %, correct to one decimal place



[illegible]

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