Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

3310U20-1

S24-3310U20-1

MONDAY, 3 JUNE 2024 – 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 **4**(a), 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.	**3**	
2.	**10**	
3.	**4**	
4.	**10**	
5.	**4**	
6.	**4**	
7.	**11**	
8.	**5**	
9.	**7**	
10.	**7**	
Total	**65**	

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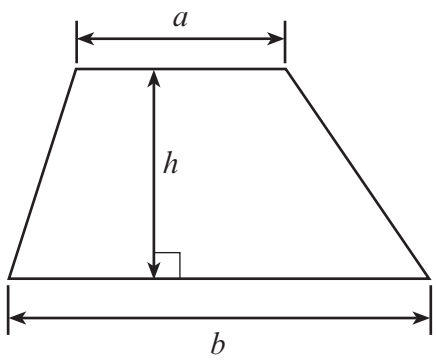
Formula List – Foundation Tier

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



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1. Morgan wants to buy the following items from a shop.

(a) Morgan uses a calculator to find the total cost of the items.

He thinks the total is £112.44.
What mistake has Morgan made? [1]

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(b) Morgan pays for all the items with a £20 note.
How much change will he get? [2]

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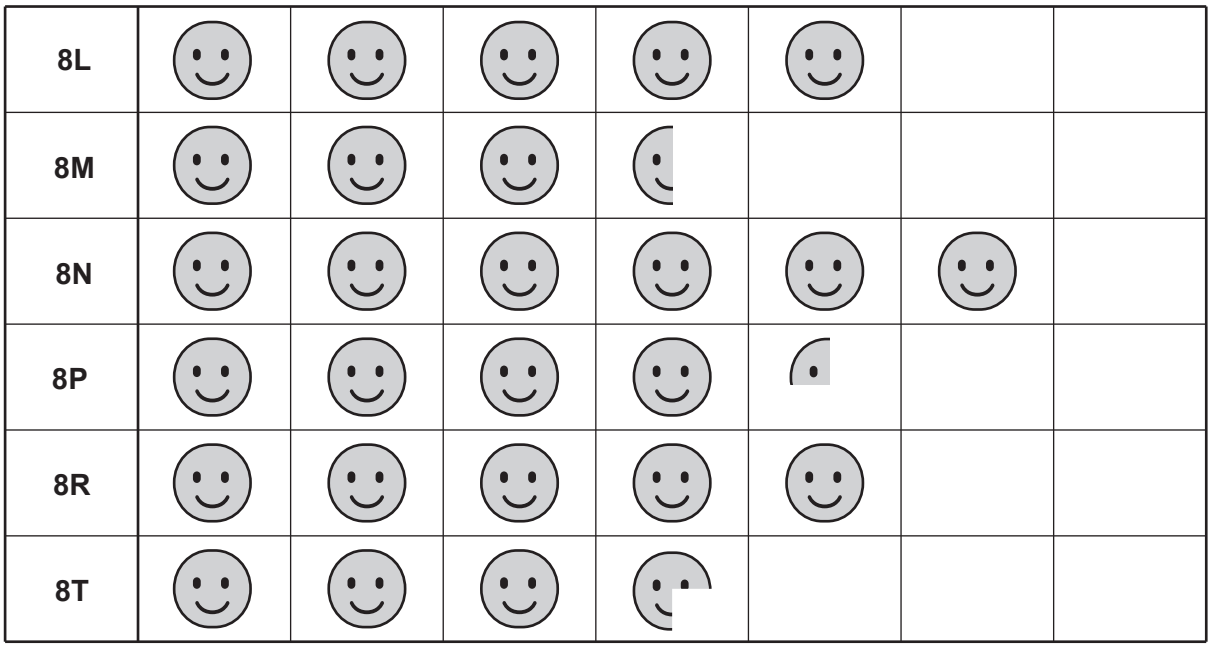
2. Gwersyll yr Urdd Glan-llyn is an outdoor activity centre in North Wales.

Some Year 8 pupils from a school are going to Glan-llyn on a trip.
The pictogram below shows how many pupils from each tutor group are going on the trip.
The key for this pictogram is incomplete.



Key: represents ..... pupils

24 pupils from **8N** are going on the trip.

(a) (i) Complete the key for the pictogram. [2]

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(ii) How many pupils from **8T** are going on the trip? [1]

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(b) There are 110 pupils and 11 teachers going to Glan-llyn.
They will all travel by bus.
Each bus has 37 seats for passengers.

Find the least number of buses needed. [3]

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The least number of buses needed = ...

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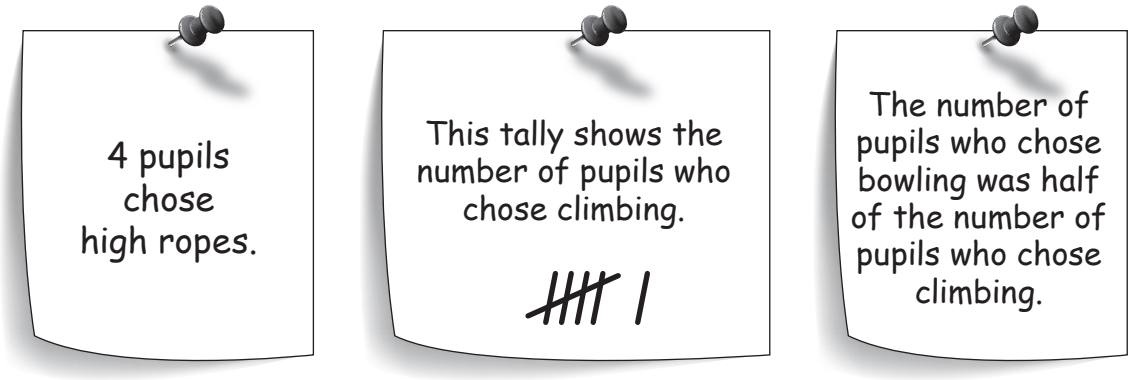
(c) (i) All **24 pupils** from 8N chose an afternoon activity.
A teacher recorded how many pupils chose each activity.
He has the following 3 notes:



Activity	Number of pupils
Climbing	
High ropes	
Bowling	
Sailing	

Complete the missing information in the table above. [3]

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(ii) One pupil is selected at random from 8N.
Which of the expressions below best describes the chance that this pupil chose the high ropes?
Circle your answer. [1]

impossible unlikely even chance likely certain

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3. Sianel 6 is a television channel.
Sianel 6 needs to fit the following programmes between three News programmes.

Name of programme	Length of programme
The Football Show	40 minutes
Baking Fun	50 minutes
Cartoon Time	25 minutes
Politics Cymru	20 minutes

For each News programme, the title shows how long the programme lasts.
For example, the 10-minute News lasts for 10 minutes.

Complete the timetable below, showing where the programmes can fit, along with their start times. [4]

START TIME	NAME OF PROGRAMME
5:00 p.m.	30-minute News
5:30 p.m.	.....
.....	.....
6:30 p.m.	15-minute News
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8:00 p.m.	10-minute News

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4. (a) *In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Mari is buying a new mobile phone.
She sees two deals for the same phone, as shown below.

DEAL A	**DEAL B**
PAY £19.99 NOW and then £28.99 a month for 24 months	PAY £100 NOW and then £24.36 a month for 24 months

Which deal is the cheaper for Mari over 24 months?
How much cheaper is this deal?
You must show all your working. [5 + 2 OCW]

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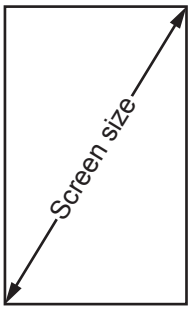
(b) The screen size of a mobile phone is given as the length of the diagonal of the screen.

Mari is trying to find the screen size of the new phone.
This phone has a rectangular screen with height 12·8 cm and width 6·3 cm.
Mari has started to draw an accurate diagram below.
She has drawn a line for the width of the phone.



Complete the diagram to find the screen size.
Give your answer in cm, correct to 1 decimal place. [3]

Width 6·3 cm

Screen size of the new phone (correct to 1 decimal place) = ... cm

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5. Geraint needs to put a fence along one edge of his garden.
He decides to make his fence using posts and panels, as shown below.
Each post has a width of 7 cm.
Each panel has a length of 180 cm.

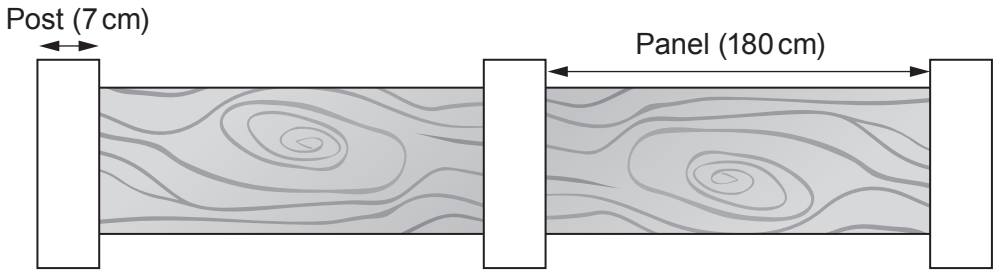

Diagram not drawn to scale

Geraint's fence will have **6 posts**.
Calculate the total length of Geraint's fence.
Give your answer in centimetres. [4]

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Total length = ... cm

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6. Shiona is saving to pay for a holiday.
She has 13 weeks to save £510 to pay for her holiday.

Shiona already has savings of £95.
In the first week, she knows she can save £70.

She plans to save equal amounts of money in each of the remaining weeks.

How much does Shiona need to save in each of the remaining weeks so that she can pay for her holiday?
You must show all your working. [4]

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7. Idris flies from Cardiff to Faro, in Portugal.

(a) The actual flying time is 133 minutes.
The plane flies at an average speed of 8 miles per minute.

(i) Calculate the flying distance between Cardiff and Faro.
Give your answer in miles. [2]

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(ii) Calculate the plane's average speed in **miles per hour**. [2]

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(b) Idris takes a cabin bag on board his flight.
His bag measures 55 cm by 40 cm by 23 cm.
The label on his cabin bag says,

Bag capacity is greater than 48 litres.

Is this label correct?

Yes ☐ No ☐

You must show all your working and give a reason for your answer. [3]

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(c) Idris looks out of the aeroplane window.
He notices a village below.
Idris takes a photograph of the village to try to work out where he is.
From the photograph, he draws a sketch including some parallel streets.

His sketch is shown below.

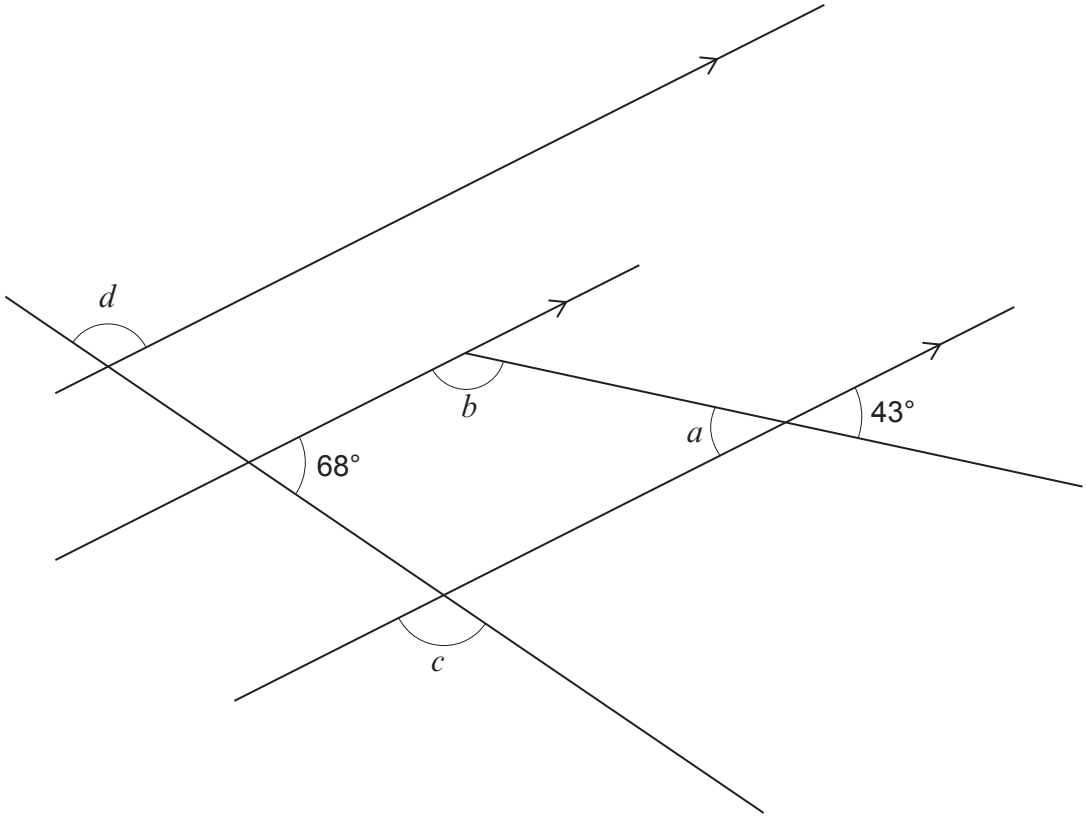

Diagram not drawn to scale

Find the size of each of the angles a, b, c and d. [4]

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a = ... ° b = ... ° c = ... ° d = ... °

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8. Gracie decides to buy a new ZX31 camera.
On the internet, she sees advertisements for the camera she wants.

Camera Fox	*US Camera Geek*	*Sure Camera*
ZX31 camera £62.95 + £3.90 delivery	ZX31 camera $81.20 with FREE international delivery	ZX31 camera special offer. Usual price £75 NOW 14% discount AND free delivery

Gracie knows that the exchange rate is £1 = $1.25.

She wants to buy the ZX31 camera that is the best value for money.

Which of the advertisements offers the best option for Gracie?
You must show all your working. [5]

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9. During the 30 days in the month of September, Andras used 138 m^3 of gas.
The cost of this gas was 12p per kWh.

The formula used to calculate the number of kWh for the gas used is as follows:

Number of kWh = number of m^3 of gas $\times$ 39·5 $\times$ 1·02264 $\div$ 3·6

The standing charge was 32p per day.
VAT at 5% was payable on the sum of the cost of the gas used and the standing charge.

Calculate Andras's gas bill for September.
You must show all your working. [7]

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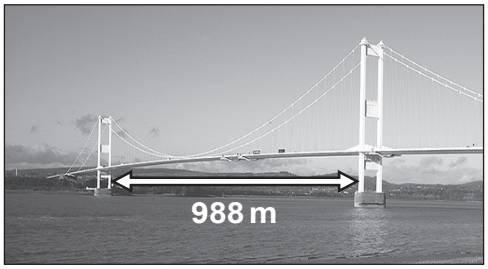
10. The Severn Bridge was built in 1966 to allow vehicles to travel between England and Wales.

The bridge has a width of 23 m and a total length of 1600 m.
The section of the bridge between the two towers is 988 m long.

The tarmac road surface is 0·035 m thick.

The cables from the towers to support the road are made from 18 000 miles of wire.



(a) What fraction of the total length of the bridge is the section between the two towers? Give your fraction in its simplest form. [2]

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(b) Calculate the length of the wire used to make the cables in **kilometres**. [2]

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(c) The cost of tarmac is £250 per m^3.

Calculate the cost of the volume of the tarmac needed to resurface the total length of the Severn Bridge. [3]

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END OF PAPER

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

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