Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

3310U10-1

Z22-3310U10-1

FRIDAY, 20 MAY 2022 – MORNING

MATHEMATICS – NUMERACY
UNIT 1: NON-CALCULATOR
FOUNDATION TIER

1 hour 25 minutes

ADDITIONAL MATERIALS

The use of a calculator is not permitted in this examination.

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.

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 **2**(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.	**2**	
2.	**11**	
3.	**3**	
4.	**10**	
5.	**5**	
6.	**4**	
7.	**6**	
8.	**8**	
9.	**8**	
10.	**3**	
Total	**60**	

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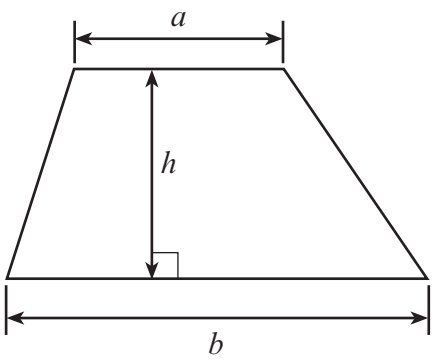
Formula List – Foundation Tier

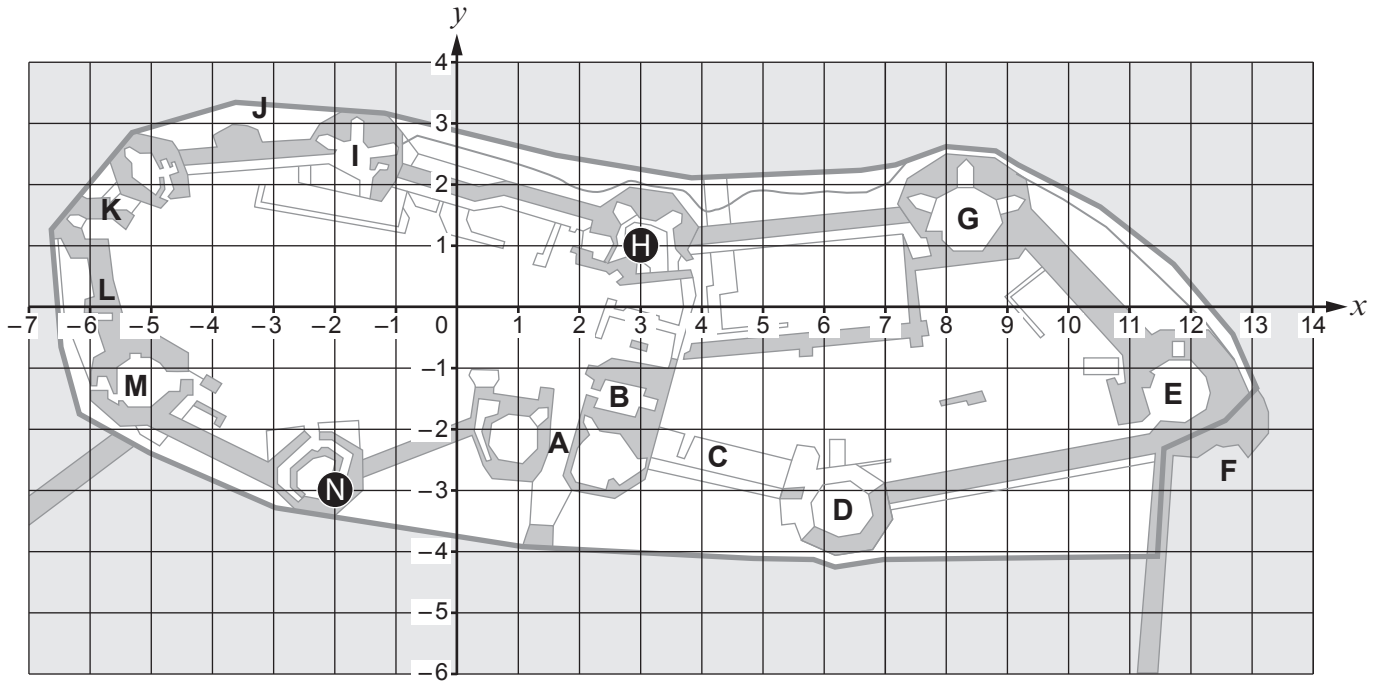
Area of trapezium $= \frac{1}{2}(a + b)h$



Examiner only

1. Rachel visited Caernarfon Castle.

She used the coordinate grid below to help her find the places that she wanted to see.



(a) The Chamberlain Tower is shown as point H on the grid.
What are the coordinates of the Chamberlain Tower? [1]

Coordinates of the Chamberlain Tower are (..... , ...)

(b) The Granary Tower is shown as point N on the grid.
What are the coordinates of the Granary Tower? [1]

Coordinates of the Granary Tower are (..... , ...)

Turn over.

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2. (a) Sandwiches are made for people at a community centre.

One Saturday, the following ingredients were used to make sandwiches for 10 people.

2 loaves of bread
50 grams of butter
3 tins of tuna
14 tomatoes

Next Saturday, there will be 40 people in the community centre.

Complete the list below to show the ingredients needed to make sandwiches for the 40 people. [2]

Sandwiches for 40 people:

..... loaves of bread

..... grams of butter

..... tins of tuna

..... tomatoes

.....

.....

.....

.....

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.....

(b) What is the best description for the shape of this tin of tuna? Circle your answer. [1]

Cuboid Cylinder Cube Sphere Cone

Examiner only

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

The local drama group is putting on a show in the community centre hall.

The hire charge for the hall is £10 per hour.
The hall will be needed from 17:00 to 22:00.

The total costs of the event are:

- hire of the hall
- costumes: £250
- printing tickets: £60
- sound and lighting equipment: £400.

Tickets for the show are sold for £8 each.

What is the smallest number of tickets that must be sold so that the drama group does not make a loss when putting on the show?
You must show all your working. [6 + 2 OCW]

Examiner only

3. Rhodri is organising his son's birthday party.
He decides to give every child a party bag.

There will be 19 children at the party.
A party bag costs £2.98 to produce.

(a) **Estimate** how much Rhodri will spend on producing party bags. [2]

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.....

.....

(b) Is your estimate an underestimate or an overestimate?

Underestimate ☐ Overestimate ☐ Can't tell ☐

Give a reason for your answer. [1]

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4. Gary works at a garage.

(a) (i) Mr Morgan wants Gary to service his car next week.

This service will take 2 hours.
Mr Morgan will leave his car at the garage before 09:00.
He needs to collect his car before 12:30 on the same day.

Look at the timetable below. The shaded hours show the times when Gary is already booked to service other cars next week.

Gary does not work during his lunch break, which is between 12:00 and 13:00 every day.

When is the earliest that Gary could start the service for Mr Morgan?
Give the day and the time. [2]

Gary's timetable for servicing cars					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
09:00 – 10:00					
10:00 – 11:00					
11:00 – 12:00					
12:00 – 13:00					
13:00 – 14:00					
14:00 – 15:00					
15:00 – 16:00					
16:00 – 17:00					

Earliest day and time that Gary could start the service:

Day ..... Time .....

(ii) When Gary spends more than 15 hours servicing cars in a week, he gets a bonus in his wages.
The bonus is £8 for each extra hour he spends servicing cars.
Mr Morgan's service is the only service added to Gary's timetable for next week.
Calculate the total bonus that Gary will get in his wages.
You must show all your working. [2]

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(b) On Tuesday, 7 cars have a service in the garage.
For each service, 4·5 litres of oil are needed.

Another 6 litres of oil are used for all the other jobs in the garage.

What is the total amount of oil needed on Tuesday? [2]

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.....

.....

.....

(c) Gary thinks that 4·5 litres is the same as 450 millilitres.
He is incorrect.
Change 4·5 litres to millilitres. [1]

4·5 litres is the same as ..... millilitres.

.....

.....

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(d) The garage doorway has a height of 2·3 m.

Mr Khan would like to have his campervan serviced.

Mr Khan's campervan is shown in the picture below.
The scale of the picture is **1 cm represents 0·4 m**.

Find the actual **height** of the campervan in metres.
Decide whether or not the campervan will fit under the garage doorway.
You must show all your working. [3]

1 cm represents 0·4 m

.....

.....

.....

Actual height of the campervan = ... metres

Will the campervan fit under the doorway? Yes ☐ No ☐

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5. One of the events in the World Athletics Championships is the men's long jump.
In the final, the top 8 competitors are allowed 6 jumps each.

The person who jumps the furthest, out of all the jumps, wins the competition.

The scoreboard below shows the results of the 2019 competition.
All the measurements are in metres.

A foul jump is recorded as X.
When a competitor decides not to jump, it is recorded with a dash (–).

The length of Henderson's 4th jump is missing from the scoreboard.

Competitor	1st Jump	2nd Jump	3rd Jump	4th Jump	5th Jump	6th Jump
Echevarria	8·25	8·14	8·34	8·30	7·91	X
Samaai	8·11	8·15	8·23	X	X	8·06
Henderson	8·28	8·18	8·39		8·13	8·17
Jianan	X	7·89	8·05	X	X	8·20
Cáceres	8·01	6·31	X	X	7·95	X
Hashioka	7·88	7·89	7·97	7·82	X	7·70
Gayle	8·46	X	X	8·69	–	–
Manyonga	8·16	8·05	8·18	8·10	8·14	8·28

(a) Which competitor was in the lead after all the competitors had completed their 1st jump? [1]

.....

(b) The length of Henderson's 4th jump was 7 metres and 3 centimetres.
How should this be recorded on the scoreboard? [1]

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(c) What is the difference between the lengths of Cáceres's 2nd and 5th jumps? [2]

.....

.....

.....

(d) Complete the table below to show who came 1st, 2nd and 3rd at the end of the competition. [1]

Position	Name
1st	
2nd	
3rd	

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6.

Castell Car Park

Parking charges

£3 for the first **2 hours**, or part of the first 2 hours

AND after that

40p for every further **20 minutes**, or part of each 20 minutes

Maximum stay is 24 hours

(a) Dewi parks his car in Castell Car Park. He parks for 2 hours 30 minutes.
How much should Dewi pay?
Circle your answer. [1]

£3.60 £3.40 £3.20 £3.80 £6.00

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(b) Elin paid £5.80 to park her car in Castell Car Park.
What is the maximum length of time that Elin has paid for?
Give your answer in hours and minutes.
You must show all your working. [3]

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Maximum length of time is ..... hours ..... minutes

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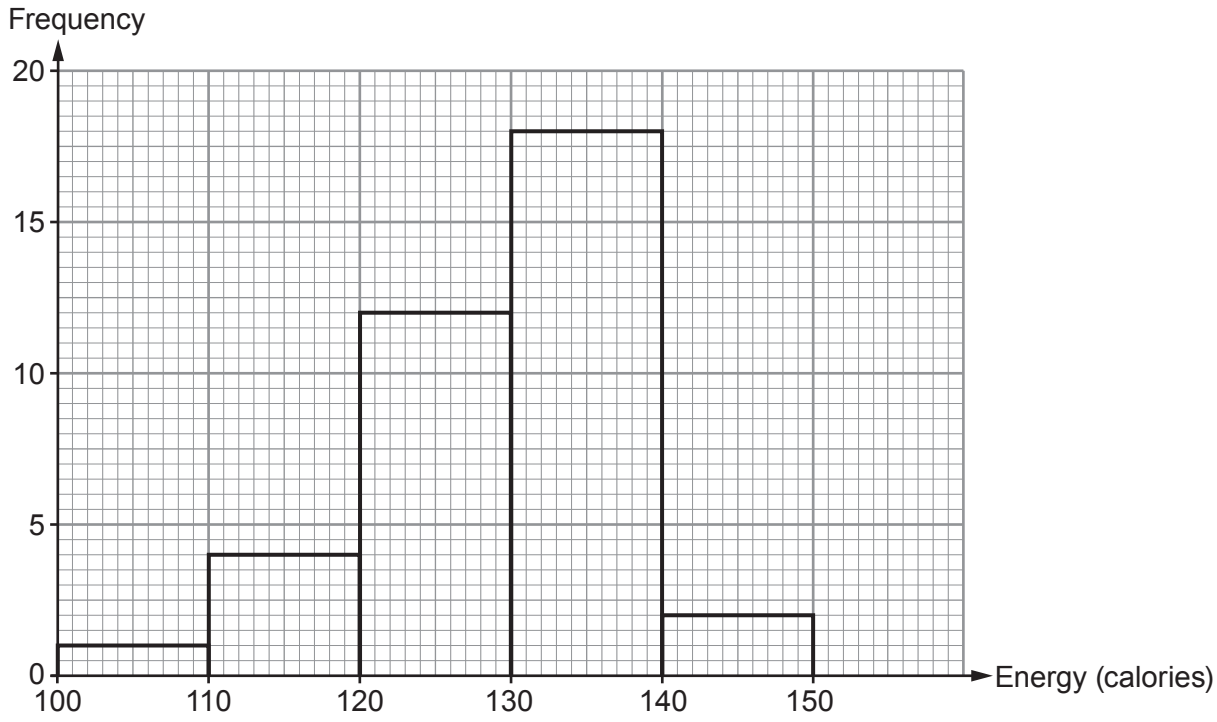
7. Rodney records how much energy, in calories, different energy bars provide.
Each energy bar has a mass of 35 g.

Rodney draws a frequency diagram to display his findings.
He uses groups of width 10 calories:

$100 \leqslant \text{energy} < 110$, $110 \leqslant \text{energy} < 120$, ..., $140 \leqslant \text{energy} < 150$



(a) Which is the modal group? [1]

.....

(b) What fraction of the energy bars provide less than 130 calories? [3]

.....

.....

.....

(c) Consider **only** the energy bars providing 130 calories or more.
What percentage of these energy bars provide 140 calories or more? [2]

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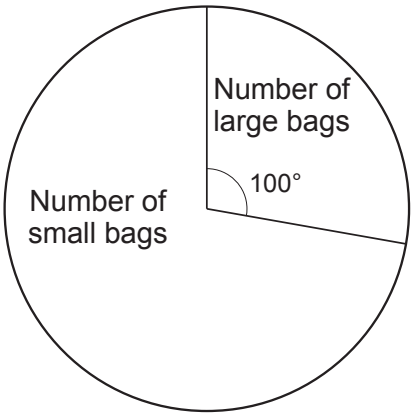
Examiner only

8. Evans Grocery sells bags of frozen peas.

Cost of small bag (400 g) = 80p	Cost of large bag (1000 g) = £1.80

(a) The pie chart shows information about the number of bags of frozen peas that were sold last month.

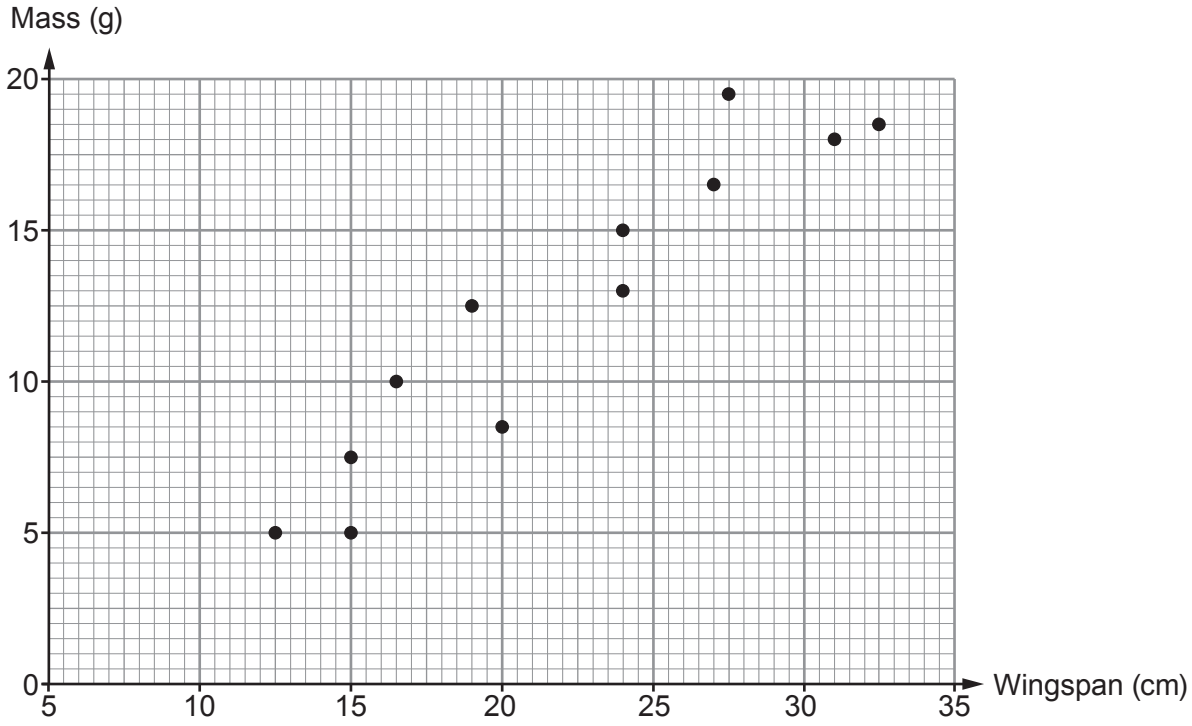


A total of 720 bags of frozen peas were sold last month.
Calculate the total cost of the sales of the frozen peas. [6]

(b) Which of the two sizes of bags of peas offers the better value for money?
You must show all your working. [2]

Examiner only

9. Myra recorded the wingspan and mass of a number of birds.
Her results are shown in the scatter diagram below.



(a) The wingspan of one of the birds shown in the scatter diagram is 31 cm.
What is the mass of this bird? [1]

Mass is ..... g

(b) Two of the birds shown in the scatter diagram have a mass of 5 g.
What is the difference between the wingspans of these two birds? [2]

.....

Difference between the wingspans is ..... cm

(c) Use 30 cm ≈ 12 inches to answer this question.

Find the wingspan of the bird with a mass of 8·5 g.
Give your answer in **inches**. [3]

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Wingspan is ..... **inches**

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(d) What type of correlation does this scatter diagram show? [1]

.....

(e) Use the scatter diagram to estimate the wingspan of a bird with a mass of 12 g. [1]

Wingspan is ..... cm

10. People travel by bus or by train from Hiraddug Station.
On Tuesday, 420 people travelled by bus from the station.
Of the 420 people who travelled by bus from the station, 35% had a travel pass.

Calculate the number of people who travelled by bus and did **not** have a travel pass. [3]

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END OF PAPER

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

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