GCSE

3310U10-1

TUESDAY, 8 NOVEMBER 2022 – MORNING

MATHEMATICS – NUMERACY

UNIT 1: NON – CALCULATOR

FOUNDATION TIER

1 hour 30 minutes plus your additional time allowance

THE USE OF A CALCULATOR IS NOT PERMITTED IN THIS EXAMINATION

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	3	
2.	10	
3.	4	
4.	7	
5.	9	
6.	4	
7.	9	
8.	3	
9.	11	
10.	5	
Total	65	

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.

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

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

1. Jayne and Llinos go shopping for their end of year prom.

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

Jayne bought the items shown in the table.

Llinos says,

“I think you have spent over £300 in total.”

By approximating the cost of each item, show that Llinos is not correct.

You must show all your working.

(Turn over)

[3 marks]

2. Look at the diagram for Question 2 in the separate Diagram Booklet.

The diagram shows the Welsh flag.

Look at the table for Question 2 in the separate Diagram Booklet.

The table shows the number of visitors to some of the top attractions in Wales in 2017 and 2018. The table also shows the percentage change in the number of visitors from 2017 to 2018.

Use the information in the table to answer the following questions.

continued on the next page . . .

Question 2 continued

2. (a) Zip World Slate Caverns had 195 000 visitors in 2018.

Write this number in words.

[1 mark]

continued on the next page . . .

Question 2 continued

2. (b) Which attraction had the smallest percentage change from 2017 to 2018?

[1 mark]

continued on the next page . . .

Question 2 continued

2. (c) Calculate the total number of visitors to Bodnant Garden in 2017 and 2018.

[2 marks]

continued on the next page . . .

Question 2 continued

2. (d) Calculate the difference between the number of visitors to Cardiff Castle in 2017 and the number of visitors to Cardiff Castle in 2018.

[2 marks]

Question 2 continued

2. (e) Ian looks at the data and says,

“In 2018, Folly Farm had about half a million visitors.”

Is Ian correct?

Give a reason for your answer.

Yes ☐ **No** ☐

[1 mark]

continued on the next page . . .

Question 2 continued

2. (f) A new visitor attraction, Tailspin, wants to use the tail of the dragon from the Welsh flag as its logo.

Look at the diagram for Question 2 (f) in the separate Diagram Booklet. The tail is drawn on a grid of squares. Each square on the grid represents an area of 4 cm^2

continued on the next page . . .

Question 2 (f) continued

Tailspin is planning to make flyers to advertise the attraction. To print the flyers, the area of the tail must be less than $48\ cm^2$

The manager of Tailspin thinks that the area of the tail is greater than $48\ cm^2$

Decide whether or not the manager is correct.

You must show all your working.

continued on the next page . . .

Question 2 (f) continued

Remember: Each square on the grid represents an area of 4 cm^2

The manager is:

Correct ☐

Not correct ☐

[3 marks]

3. Rhodri has a 6 – digit code for his internet bank account.

He remembers the code as three lots of two – digit numbers.

The first two – digit number is a prime number between 25 and 30

The second two – digit number is a square number between 10 and 20

The third two – digit number is an odd number that is a multiple of 7 between 20 and 40

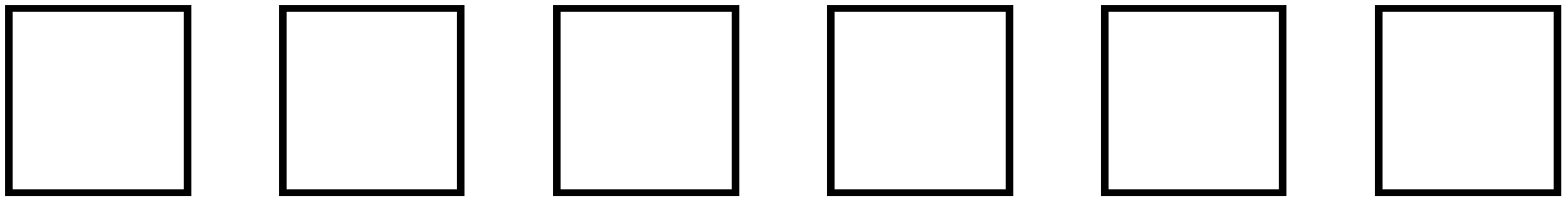
continued on the next page . . .

Question 3 continued

All 6 digits of Rhodri's code are DIFFERENT.

What is Rhodri's 6 – digit code?

Rhodri's 6 – digit code is:



[4 marks]

(Turn over)

4. A jewellery designer makes brooches.

Each brooch consists of a number of identical pieces of metal.

These brooches come in different designs. These designs follow a simple pattern.

Look at the diagram for Question 4 in the separate Diagram Booklet. The first three designs are shown in the diagram.

Design 1 consists of 3 pieces of metal.

continued on the next page . . .

Question 4 continued

4. (a) How many pieces of metal will be used to make the brooch in Design 5?

[1 mark]

continued on the next page . . .

Question 4 continued

4. (b) Which design uses 11 pieces of metal?

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 4 continued

4. (c) A customer says,

“To find how many pieces of metal are used in every design, you multiply the design number by 3, because Design 1 has three pieces of metal.”

continued on the next page . . .

Question 4 (c) continued

Is the customer correct for every design?

Yes ☐ **No** ☐

Give a reason for your answer.

[1 mark]

Question 4 continued

4. (d) Look at the diagram for Question 4 (d) in the separate Diagram Booklet. The diagram is NOT drawn to scale.

One customer decides to order a special brooch with a horizontal bar at the top.

The designer knows two of the angles. These are shown in the diagram.

continued on the next page . . .

Question 4 (d) continued

In the diagram,

Angle *ABE* = 55°

Angle *EBD* is a right angle

Angle *CBD* = *x*.

Calculate the size of angle *x*.

_____

_____

_____

_____

***x* = _____°**

[2 marks]

continued on the next page . . .

Question 4 continued

4. (e) Look at the formula for Question 4 (e) in the separate Diagram Booklet.

The designer uses the formula shown to calculate how much he will charge for a brooch.

A customer spends £30 on a brooch for a friend.

Calculate the cost of the materials for this brooch.

Cost of materials is £ _____

[2 marks]

5. IN THIS QUESTION, YOU WILL BE ASSESSED ON THE QUALITY OF YOUR ORGANISATION, COMMUNICATION AND ACCURACY IN WRITING.

Gerry plays the piano in a band.

He wants to buy a new digital piano.

The total cost of the piano is £800

Gerry has already saved $\frac{3}{10}$ of the cost of the piano.

The manager of the band gives him 25% of the cost of the piano.

continued on the next page . . .

Question 5 continued

Gerry decides to save £80 per week.

How many weeks will it take Gerry to save enough money to buy the piano?

You must show all your working.

(Turn over)

(Turn over)

[7 marks + 2 marks OCW]

6. Look at the information provided for Question 6 in the separate Diagram Booklet.

The information shows the tram timetable from Kemp Station to Rowe Place.

(a) At what time does the first tram after 20:30 leave Kemp Station?

Circle your answer.

20:50	20:40	21:00	20:36	20:42

[1 mark]

Question 6 continued

6. (b) Nesta looks at the information shown. She decides to take the latest possible tram from Kemp Station to be at Rowe Place by 10:15 a.m.

At what time will Nesta's tram arrive at Rowe Place?

You must show all your working.

[3 marks]

7. Look at the pictures for Question 7 in the separate Diagram Booklet. The pictures are NOT drawn to scale.

Rosie is printing two different rectangular pictures of her dog, a small picture and a large picture. The small picture has a height of 10 cm and a width of 5 cm. The large picture has a height of 40 cm and a width of 15 cm.

continued on the next page . . .

Question 7 continued

7. (a) The small picture costs £2 to print.

Each 1 cm^2 of the small picture costs the same to print as each 1 cm^2 of the large picture.

Calculate the cost of printing the large picture.

You must show all your working.

(Turn over)

(Turn over)

[6 marks]

continued on the next page . . .

Question 7 continued

7. (b) Look at the diagram for Question 7 (b) in the separate Diagram Booklet.

The diagram is NOT drawn to scale. The diagram shows a picture frame.

To make a frame, it costs 40p for each centimetre of the total distance around the outside of the picture.

Calculate the cost of making a frame for the SMALL picture.

Cost of making a frame for the SMALL picture is _____

[3 marks]

8. Martina is going to buy some milk to make pancakes.

Look at the information provided for Question 8 in the separate Diagram Booklet. The information is about the prices of different cartons of milk.

Which size carton of milk offers the best value for money?
You must show all your working.

[3 marks]

9. (a) (i) Hubert has a quote from a gardener to landscape his garden. The gardener will charge a total of £175, excluding VAT.

This total charge includes £55 for plants.

The remainder of the charge is for labour.

The gardener says it will take 8 hours to landscape Hubert's garden.

continued on the next page . . .

Question 9 (a) (i) continued

Calculate how much per hour the gardener is charging for labour.

[2 marks]

continued on the next page . . .

Question 9 (a) continued

9. (a) (ii) VAT at 20% is payable on the charge of £175 Calculate the total charge of the landscaping, including the VAT.

[3 marks]

Question 9 continued

9. (b) Look at the diagram for Question 9 (b) in the separate Diagram Booklet. The diagram is a scatter diagram.

The following summer, Hubert picked 10 different flowers from his garden. He measured the height of each flower.

He also counted the number of leaves on each flower.

His results are shown on the scatter diagram.

continued on the next page . . .

Question 9 (b) continued

9. (b) (i) Is it possible to estimate the number of leaves on a flower of height 6 cm?

Yes ☐ **No** ☐

You must give a reason for your answer.

_____

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 9 (b) continued

9. (b) (ii) How tall is the flower with the greatest number of leaves?

Circle your answer.

26 cm	**2•5 cm**	**7•5 cm**	**5 cm**	**17•5 cm**

[1 mark]

continued on the next page . . .

Question 9 (b) continued

9. (b) (iii) There are two flowers that each have 19 leaves.

Calculate the difference in the heights of these two flowers.

You must show all your working.

Difference in the heights is

_____ cm [2 marks]

continued on the next page . . .

Question 9 (b) continued

9. (b) (iv) Calculate the percentage of the flowers that have FEWER THAN 23 LEAVES.

_____ **% of the flowers have FEWER THAN 23 LEAVES.**

[2 marks]

10. Malik has some cherry trees.

Malik makes cherry jam using some of the fruit from his trees.

He makes and sells 200 jars of cherry jam.

It costs him £94 for all the ingredients to make the jam.

Malik pays 23p for each jam jar he uses.

He sells each jar of jam for £1.60

Calculate the profit Malik makes from selling his 200 jars of jam.

_____

_____

(Turn over)

[5 marks]

END OF PAPER

TOTAL 65 MARKS

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

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MATHEMATICS – NUMERACY

UNIT 1: NON – CALCULATOR FOUNDATION TIER

The Diagram Booklet MUST be handed in to the invigilators and sent for marking.

Diagram Booklet

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

Question 1

Table

ITEM	COST
Dress	£199.85
Shoes	£38.75
Bag	£27.98
Jewellery	£18.99

Question 2

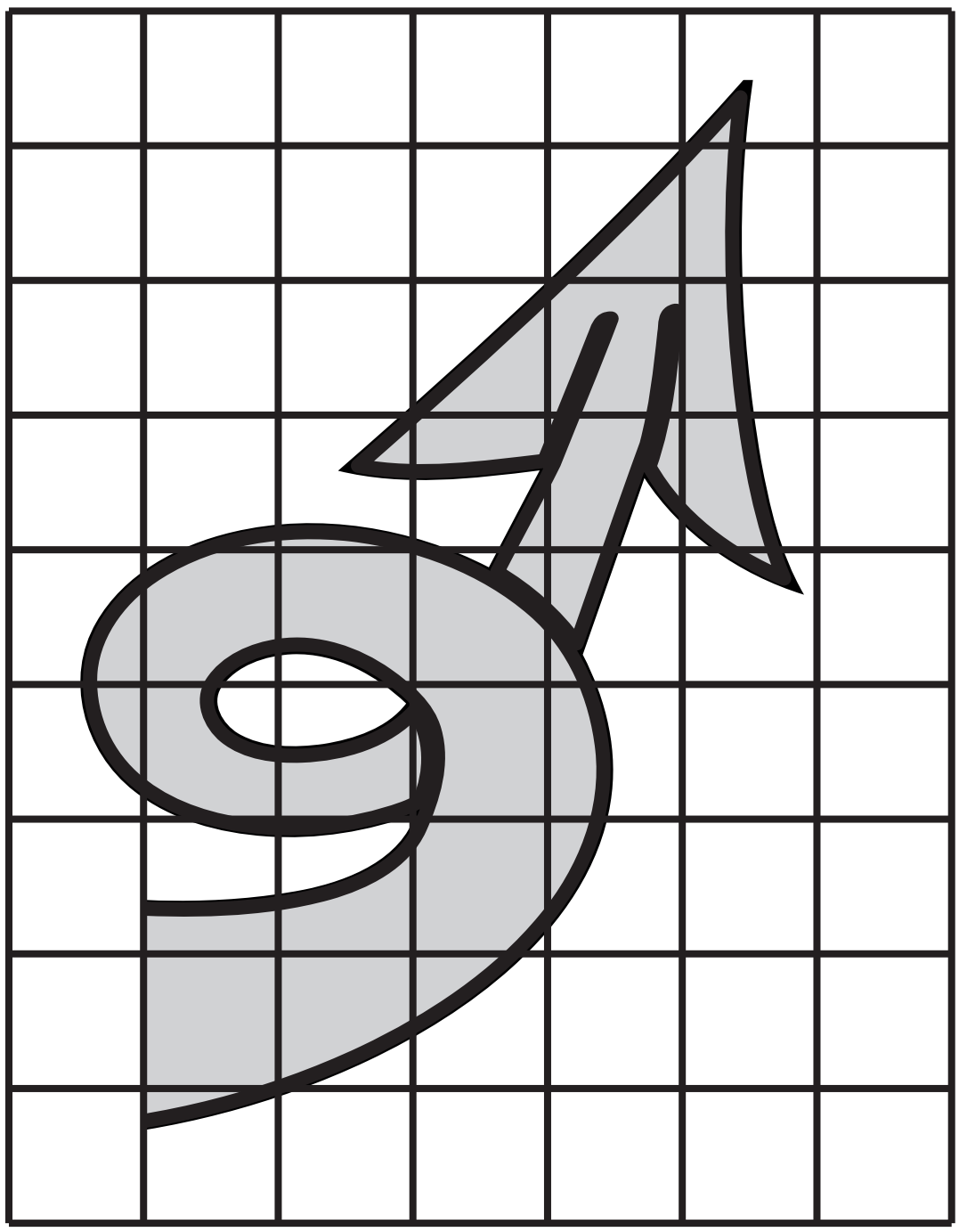
Question 2

Table

ATTRACTION	NUMBER OF VISITORS 2017	NUMBER OF VISITORS 2018	PERCENTAGE CHANGE
Folly Farm	480 000	455 428	– 5•1%
Cardiff Castle	319 131	452 007	+ 41•6%
Bodnant Garden	255 949	260 153	+ 1•6%
Caernarfon Castle	204 675	205 009	+ 0•2%
Conwy Castle	221 652	201 961	– 8•9%
Zip World Slate Caverns	190 000	195 000	+ 2•6%

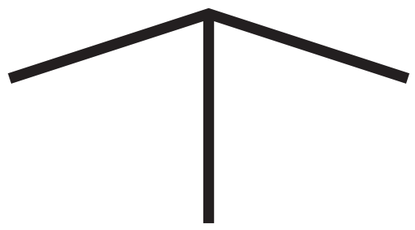
Question 2 (f)

Each square on the grid represents an area of 4 cm^2

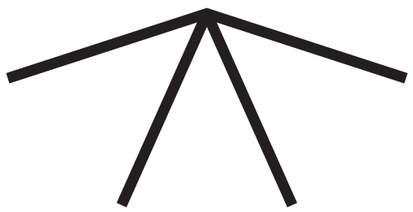


Question 4

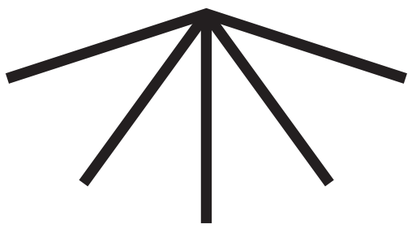
Design 1



Design 2

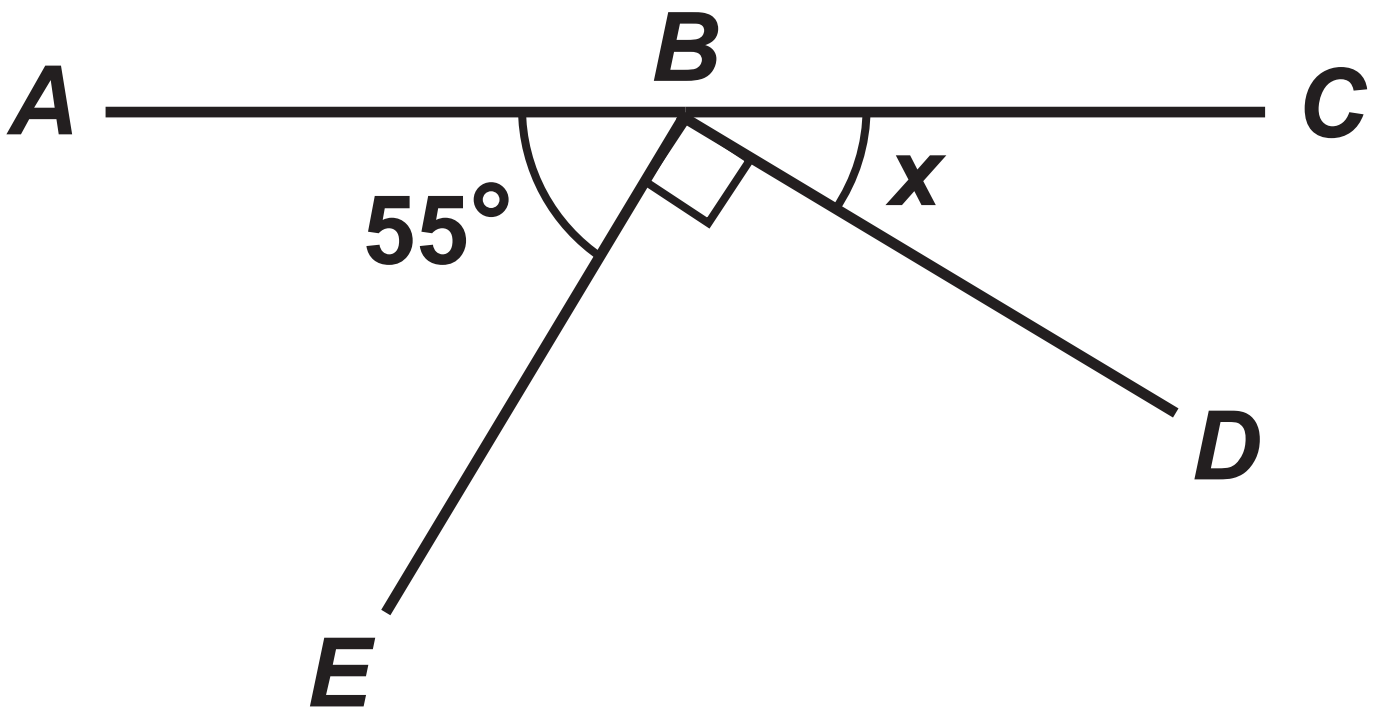


Design 3



Question 4 (d)

Diagram NOT drawn to scale



Question 4 (e)

Formula

Charge for a brooch (in £) = 2 × cost of materials + 14

Question 6

Information

TRAM TIMETABLE FROM KEMP STATION TO ROWE PLACE

Trams leave the station:

- **every 12 minutes from 8 a.m. until 10 a.m.**
- **every 20 minutes from 10 a.m. until late.**

It takes 22 minutes from Kemp Station to Rowe Place.

Question 7

Pictures NOT drawn to scale

Small picture

5 cm

10 cm

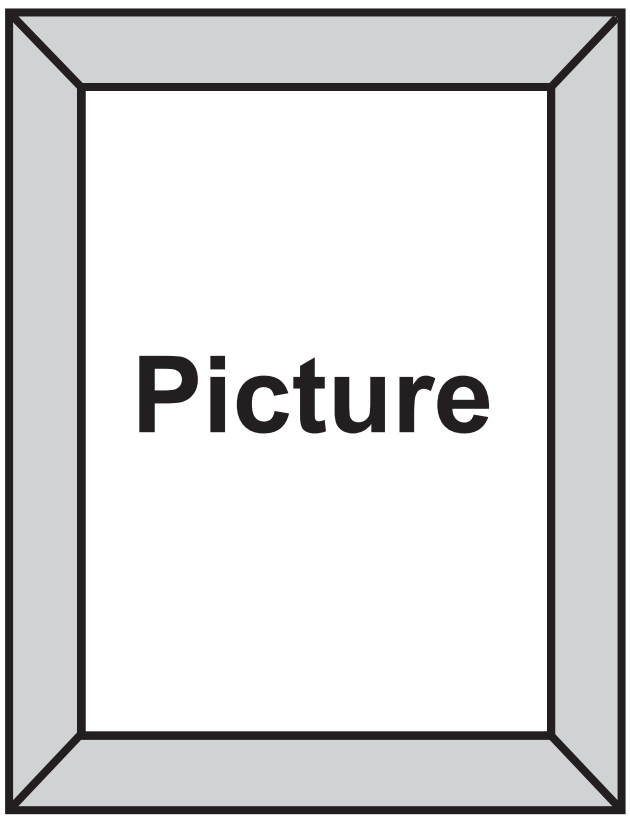
Large picture

15 cm

40 cm

Question 7 (b)

Diagram NOT drawn to scale

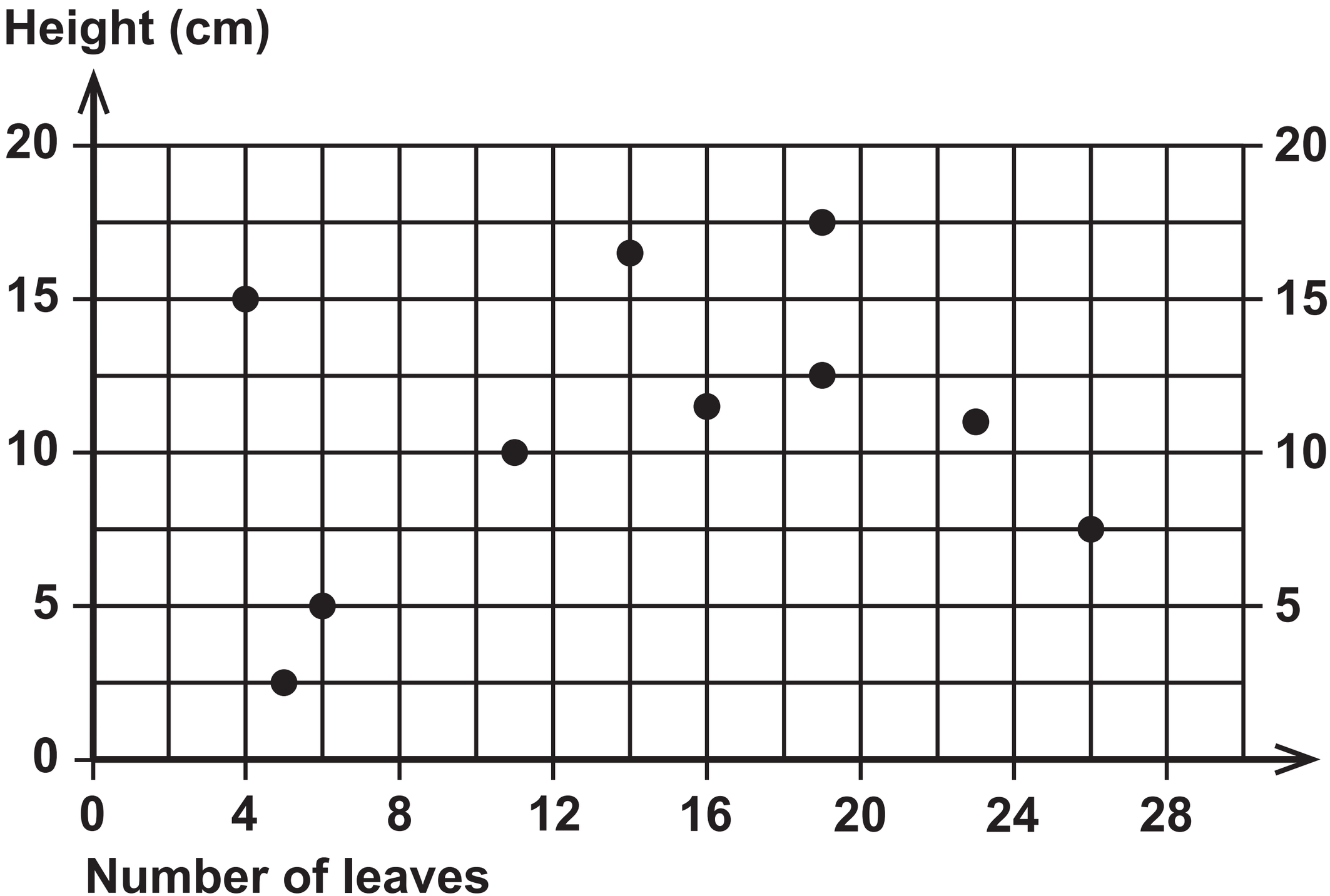


Question 8

Information

SMALL carton of milk **500 ml for 40p**
MEDIUM carton of milk **1200 ml for £1.20**
LARGE carton of milk **2000 ml for £2.50**

Question 9 (b)



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NUMERACY

FORMULA LIST
FOUNDATION TIER
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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 $= \frac{1}{2}(a + b)h$