



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	

(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.

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.

Jayne bought the following items.

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

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.

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.

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

Write this number in words.

[1 mark]

continued on the next page . . .

(Turn over)

Question 2 continued

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

[1 mark]

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

[2 marks]

continued on the next page . . .

(Turn over)

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]

continued on the next page . . .

(Turn over)

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 . . .

(Turn over)

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

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

continued on the next page . . .

Question 2 (f) continued

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.

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

The manager is:

Correct

Not correct

(Turn over)

13

[3 marks]

(Turn over)

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**

All **6** digits of Rhodri’s code are **DIFFERENT**.

What is Rhodri’s **6** – digit code?

Rhodri's 6 – digit code is:

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[4 marks]

**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.

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

[1 mark]

continued on the next page . . .

(Turn over)

Question 4 continued

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

[1 mark]

continued on the next page . . .

(Turn over)

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.”

Is the customer correct for every design?

Yes No

Give a reason for your answer.

[1 mark]

(Turn over)

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.

In the diagram,

Angle $ABE = 55^\circ$

Angle EBD is a right angle

Angle $CBD = x$.

Calculate the size of angle x .

$x =$ _____ $^\circ$

[2 marks]

(Turn over)

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]

(Turn over)

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.

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.

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
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[1 mark]

continued on the next page . . .

(Turn over)

[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 . . .

Cost of making a frame for the SMALL picture

is _____

[3 marks]

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

She has the following 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

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.

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

[2 marks]

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]

continued on the next page . . .

(Turn over)

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]

- (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
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[1 mark]

continued on the next page . . .

(Turn over)

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 . . .

(Turn over)

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]

(Turn over)

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.

[5 marks]

END OF PAPER

TOTAL 65 MARKS

(Turn over)



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Diagram Booklet

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

Question 2



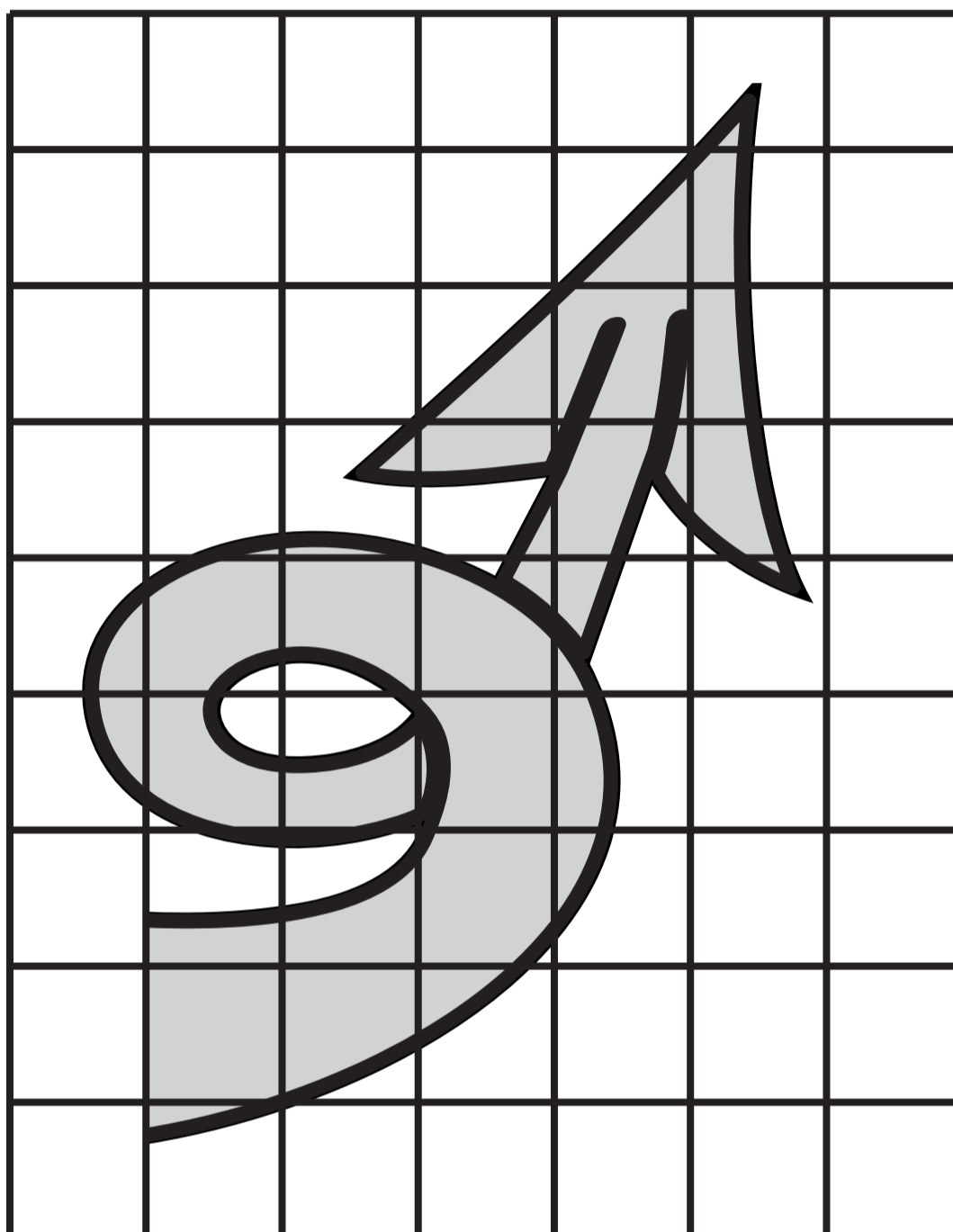
Question 2

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%

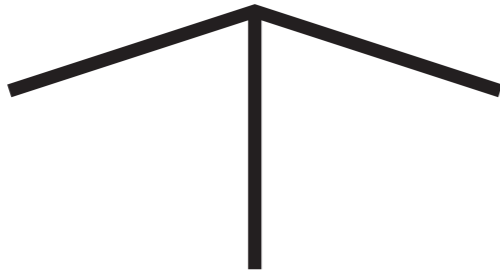
Question 2 (f)

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

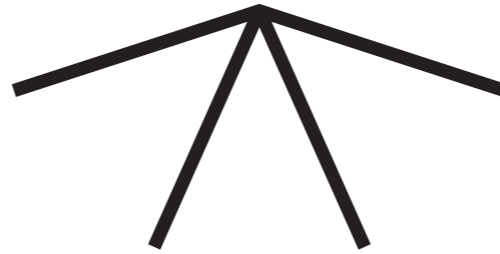


Question 4

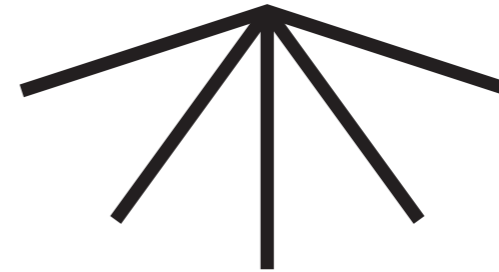
Design 1



Design 2

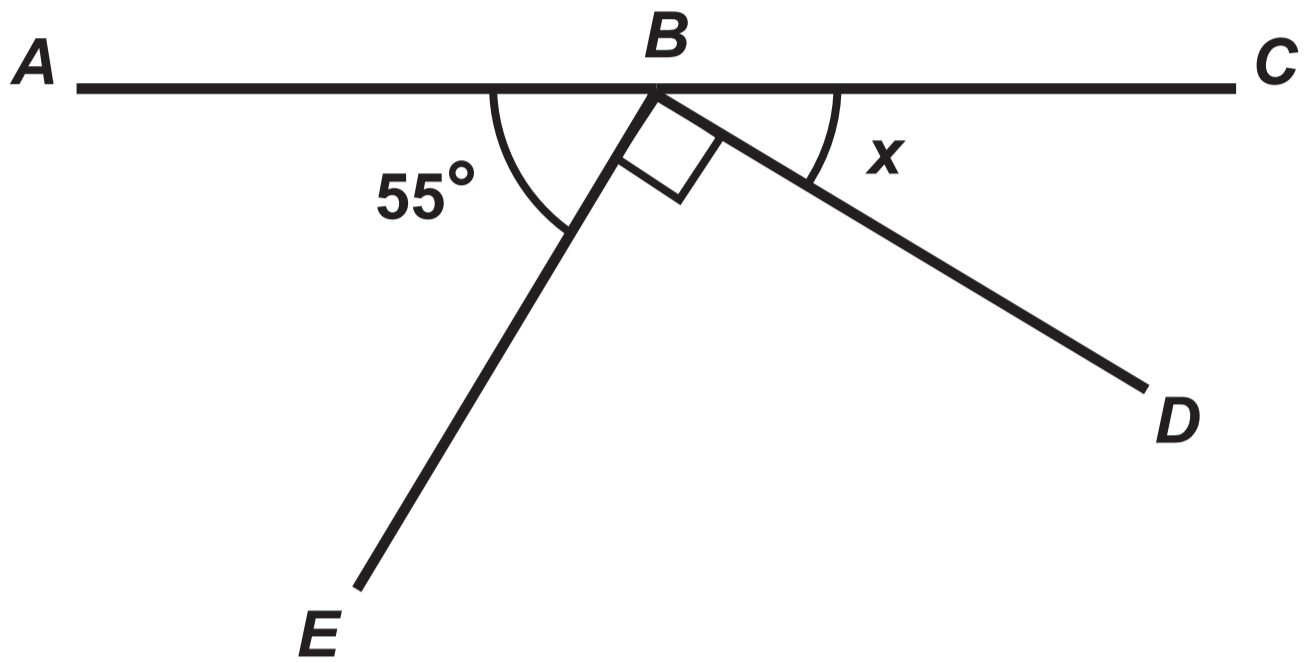


Design 3



Question 4 (d)

Diagram NOT drawn to scale



Question 4 (e)

Formula

$$\text{Charge for a brooch (in £)} = 2 \times \text{cost of materials} + 14$$

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

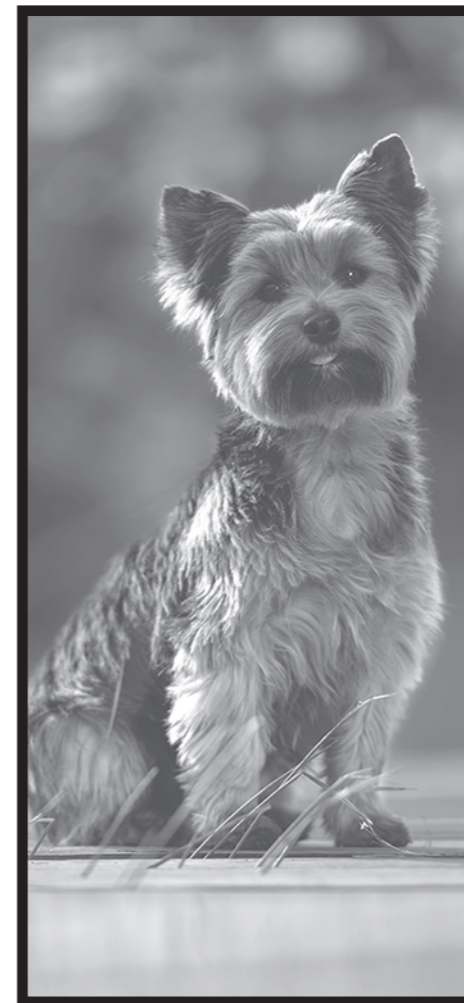
5 cm



10 cm

Large picture

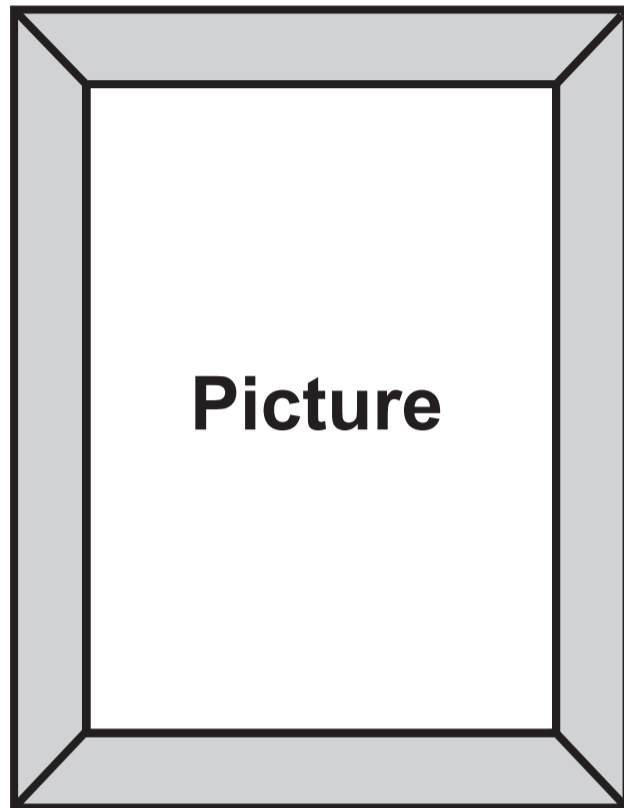
15 cm



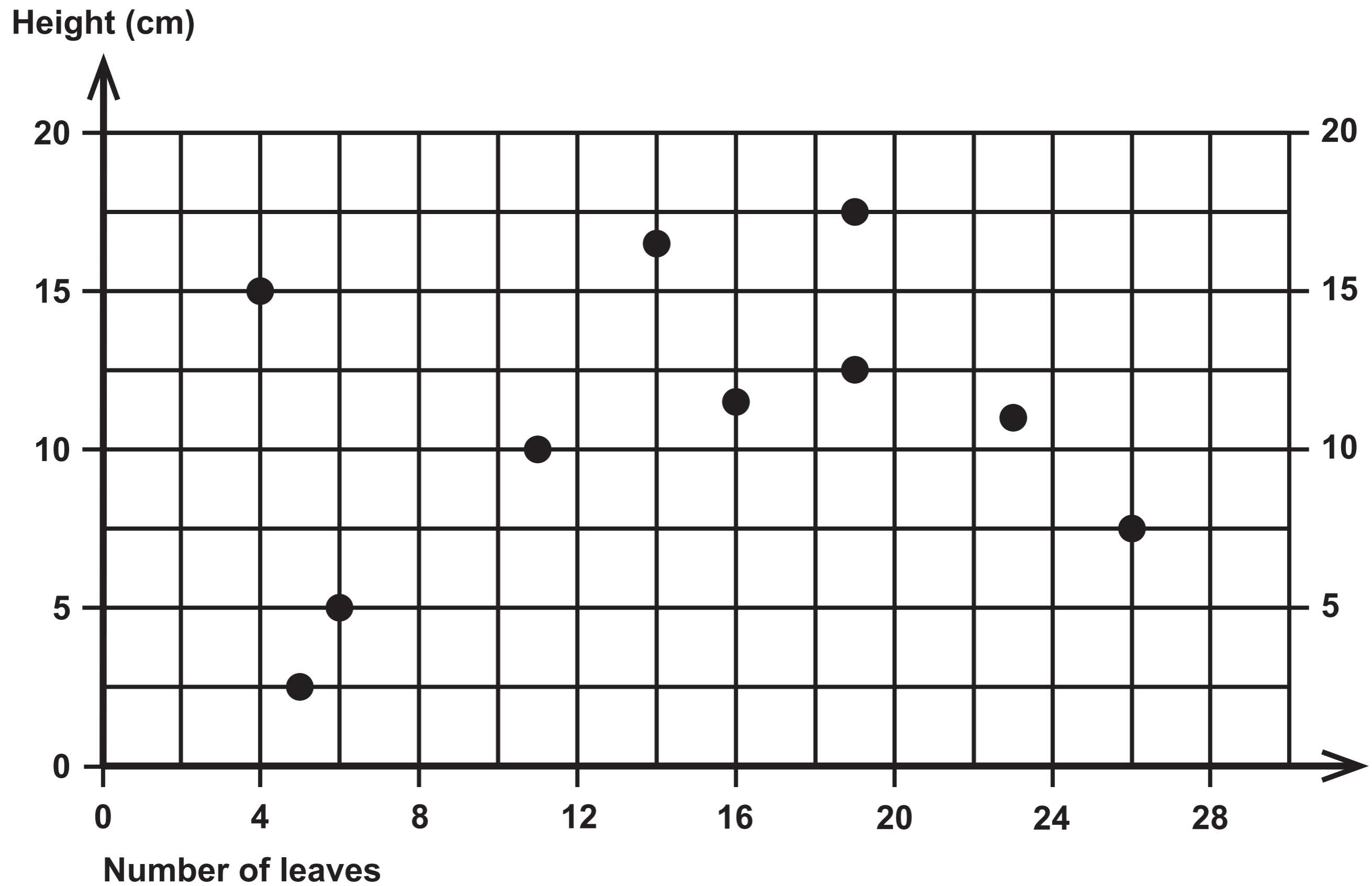
40 cm

Question 7 (b)

Diagram NOT drawn to scale



Question 9 (b)



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

