GCSE

3310U10 – 1

TUESDAY, 5 NOVEMBER 2024 – 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.	10	
2.	11	
3.	10	
4.	8	
5.	10	
6.	12	
7.	4	
Total	65	

ADDITIONAL MATERIALS

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

ITEMS INCLUDED WITH QUESTION PAPER

A separate Formula List.

A separate Diagram Booklet.

A model for Question 3 (b).

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 this booklet, taking care to number the question(s) correctly.

Take π as $3 \cdot 14$

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

1. (a) **Sharon has a new job in Margam Park.**

Look at the diagram for Question 1 (a) in the separate Diagram Booklet. The diagram shows a tally chart.

On a Saturday afternoon, Sharon carried out a survey.
She asked visitors who were leaving Margam Park to choose their favourite activity.
Sharon shows the activities and some of her results in the tally chart.

Sharon then realises she did not record the replies of the last 9 visitors. Of these:

- **3 visitors chose the tree–top adventure**
- **3 visitors chose the castle tour**
- **3 visitors chose mountain biking.**

continued on the next page . . .

Question 1 (a) continued

1. (a) (i) Sharon says:

"The modal favourite activity in the park is the Playground."

Complete the tallies and frequencies in the tally chart to decide if Sharon is correct.

Is Sharon correct?
Give a reason for your answer.

Yes ☐ **No** ☐

[3 marks]

continued on the next page . . .

Question 1 (a) continued

1. (a) (ii) How many visitors took part in the survey in total?

_____

_____

_____

[1 mark]

(iii) Look at the diagram for Question 1 (a) (iii) in the separate Diagram Booklet.
The diagram is a grid.

Sharon displays her findings in a vertical line diagram.
She shows this to other staff at a monthly meeting.

Draw Sharon's VERTICAL LINE diagram.

[3 marks]

continued on the next page . . .

Question 1 (a) continued

1. (a) (iv) Complete the statement below:

'The number of visitors who chose the Playground was _____ times the number who chose the Park train ride.'

[1 mark]

(v) At the monthly meeting, Sharon looks at the results from her Saturday afternoon survey and says:

"This month, the Park train ride is not doing very well when compared with the Playground."

Give one reason why this may NOT be true.

[1 mark]

continued on the next page . . .

Question 1 continued

1. (b) Sharon has checked the weather forecast for next week and it shows that it will rain on 5 out of the 7 days.

One day from next week is chosen at random.

Which of the following best describes the chance that it will rain on that day?

Circle your answer.

impossible
unlikely
even chance
likely
certain

[1 mark]

2. Kiera goes to the cinema with her friend.

(a) IN THIS PART OF THE QUESTION, YOU WILL BE ASSESSED ON THE QUALITY OF YOUR ORGANISATION, COMMUNICATION AND ACCURACY IN WRITING.

A ticket bought AT THE CINEMA costs £4.50

Kiera decides to buy the 2 tickets ONLINE IN ADVANCE.

When she buys the tickets online:

- **she is given 10% off the cost of each ticket**
- **she has to pay a total booking fee of £1.40**

How much does Kiera pay in total for the 2 tickets?

[4 marks + 2 marks OCW]

continued on the next page . . .

Question 2 continued

2. (b) Look at the diagram for Question 2 (b) in the separate Diagram Booklet. The diagram represents seats in a cinema.

The position of each seat in the cinema is given by a code, for example, seat E5

Each row of seats is labelled with a letter, A, B, C, D, E, F, G and H.

Each row starts with seat number 1

Seats A1 and A2 have already been booked.

This is shown by the crosses on the diagram.

Kiera books seats G9 and G10 for herself and her friend.

Draw a cross on each of these 2 seats on the diagram.

[1 mark]

continued on the next page . . .

Question 2 continued

2. (c) Look at the table for Question 2 (c) in the separate Diagram Booklet. The table shows the prices of soft drinks and snacks at the cinema. When Kiera arrives at the cinema, she sees these prices advertised.

Kiera decides to buy the Deluxe Combo.
How much will Kiera save by buying the Deluxe Combo instead of buying a large soft drink and a large popcorn separately?

[4 marks]

3. (a) Magic Johnson is one of the greatest basketball players of all time.

- **He first played for the LA Lakers in 1979.**
- **His height is 206 cm.**
- **His salary in 1989 was $3 142 000**

(i) How many years ago did Magic Johnson first play for the LA Lakers?

[1 mark]

(ii) What is Magic Johnson's height in metres?

[1 mark]

continued on the next page . . .

Question 3 (a) continued

3. (a) (iii) Write his salary of $3 142 000 in words.

_____

_____

_____

_____

_____

[1 mark]

(b) Ask for the model for Question 3 (b). The model represents a basketball.

Which of the following is the best description for the shape of a basketball?

Circle your answer.

Sphere
Cylinder
Cuboid
Cone
Cube

[1 mark]

continued on the next page . . .

Question 3 continued

3. (c) Look at the diagram for Question 3 (c) in the separate Diagram Booklet. The diagram is a SCALE DRAWING of a basketball court. A local basketball club trains on a basketball court each week.

The basketball court is rectangular.

The ACTUAL LENGTH of the basketball court is 28 metres.

Use the scale drawing to find the ACTUAL WIDTH of the basketball court.

Actual width of the basketball court is _____ metres

[3 marks]

continued on the next page . . .

Question 3 continued

3. (d) Look at the diagram for Question 3 (d) in the separate Diagram Booklet. The diagram is NOT drawn to scale. The diagram represents the positions of three players on a basketball court, Alex, Bryn and Charlie.

(i) Bryn faces Alex.
Bryn then turns clockwise to face Charlie.

Charlie thinks that Bryn has turned through an acute angle.
Do you agree?
Give a reason for your answer.

Yes ☐ **No** ☐

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 3 (d) continued

3. (d) (ii) On the diagram provided for Question 3 (d) (ii) in the separate Diagram Booklet, complete an ACCURATE SCALE DRAWING to show Charlie's position.

The positions of Alex and Bryn are shown.

Use the scale:

1 cm represents 0•5 metres.

[2 marks]

4. (a) Look at the diagram for Question 4 (a) in the separate Diagram Booklet. The diagram is a map. The map shows part of the coastline and some islands off the coast of Gwynedd.

(i) Write down the bearing of Aberdaron from Bardsey Island lighthouse.

_____ °

[1 mark]

(ii) Write down the bearing of Bardsey Island lighthouse from Ynys Gwylan – bach.

_____

_____

_____ °

[1 mark]

continued on the next page . . .

Question 4 (a) continued

4. (a) (iii) Huw can see Bardsey Island lighthouse from Ynys Gwylan – bach.

The distance between Bardsey Island lighthouse and Ynys Gwylan – bach is 5 miles.

How far is the lighthouse from Ynys Gwylan – bach in KILOMETRES?

You must show all your working.

[2 marks]

continued on the next page . . .

Question 4 continued

4. (b) The candela and the lumen are units that can be used to measure light intensity.

Look at the diagram for Question 4 (b) in the separate Diagram Booklet. The diagram is a conversion graph.
You can use the graph to make approximate conversions between candelas and lumens for a particular type of light.

For this type of light, complete each of the following statements.

(i) 1•15 candelas is approximately equal to _____ lumens.

[1 mark]

(ii) 13•5 lumens is approximately equal to_____ candelas.

[1 mark]

continued on the next page . . .

Question 4 continued

4. (c) The light from Bardsey Island lighthouse has an intensity of approximately 52 000 candelas.
The light from Strumble Head lighthouse in Pembrokeshire has an intensity of approximately 1 000 000 candelas.

BY ESTIMATING, complete the following statement.
You must show all your working.

‘The light from Strumble Head lighthouse is approximately _____ times as intense as the light from Bardsey Island lighthouse.’

[2 marks]

5. Maria makes and sells individual portions of salad.

(a) The tomatoes Maria needs to make 5 portions of salad cost her £1.75

Calculate the cost of the tomatoes she needs to make 40 portions of this salad.

[3 marks]

continued on the next page . . .

Question 5 continued

5. (b) Maria makes a salad dressing from oil and vinegar.

She uses oil and vinegar in the ratio 3 : 1

Maria makes 280 ml of salad dressing.

Calculate the quantity of oil and the quantity of vinegar in the salad dressing.

Oil _____ ml

Vinegar _____ ml

[3 marks]

continued on the next page . . .

Question 5 continued

5. (c) It costs Maria £24 to make 40 portions of salad. She sells all these portions of salad for 90p each.

Calculate the PERCENTAGE profit that Maria makes.

[4 marks]

6. (a) Charlton Garden Centre sells plant pots and saucers.

Plant pot 40p	Plant pot saucer 25p

At the garden centre, Enid buys twice as many plant pots as she does saucers.
The cost of a plant pot is 40p.
The cost of a saucer is 25p.
She spends £10.50 buying these plant pots and saucers.

Calculate how much Enid spends on buying the SAUCERS.
You must show all your working.

_____

_____

Enid spends £ _____ buying the SAUCERS.

[3 marks]

continued on the next page . . .

Question 6 continued

6. (b) Look at the information for Question 6 (b) in the separate Diagram Booklet.
Charlton Garden Centre sells packets of wild flower seeds.

Which of the three different packets of seeds is the best value for money?

Bee Flower Mix ☐

Cornfield Flower Mix ☐

Butterfly Flower Mix ☐

You must show all your working.

[4 marks]

continued on the next page . . .

Question 6 continued

6. (c) Look at the diagram for Question 6 (c) in the separate Diagram Booklet. The diagram is NOT drawn to scale.

Gareth buys packets of Cosmos flower seeds to sow in a part of his garden.
The diagram shows this part of his garden labelled *ABCD*.

In the diagram:
***AB* = 3•5 metres**
***AD* = 1•6 metres**
***DC* = 4•5 metres**
AB* is parallel to *DC
Angle *ADC* is a right angle.

A 2•5 g packet of Cosmos seeds costs £8.20
Gareth needs 1 gram of Cosmos seeds to sow an area of 1 m^2

continued on the next page . . .

Question 6 (c) continued

Calculate how much it costs Gareth to buy the packets of Cosmos seeds he needs to sow this part of the garden.

You must show all your working.

[5 marks]

7. **Look at the diagrams for Question 7 in the separate Diagram Booklet. The diagrams show two frequency diagrams.**

Miss Hughes asked her class of Year 9 pupils and her class of Year 10 pupils how many minutes they each spent on their mathematics homework last weekend.

The frequency diagrams in the Diagram Booklet show the results.

The groups used are as follows:

0 ≤ time < 10
10 ≤ time < 20
20 ≤ time < 30
30 ≤ time < 40

(a) What is the modal group of the times for the Year 9 pupils?

_____

_____

[1 mark]

continued on the next page . . .

Question 7 continued

7. (b) How many of the Year 10 pupils spent 20 minutes or more on their mathematics homework last weekend?

_____

_____

[1 mark]

continued on the next page . . .

Question 7 continued

7. (c) Did any of the Year 10 pupils spend NO time on their mathematics homework last weekend?

Yes ☐

No ☐

Can't tell ☐

You must give a reason for your answer.

[1 mark]

continued on the next page . . .

Question 7 continued

7. (d) Delyth calculates the following:

- **the fraction of the Year 9 pupils who spent between 30 and 40 minutes on their homework**
- **the fraction of the Year 10 pupils who spent between 30 and 40 minutes on their homework.**

Delyth says,

"These fractions are exactly the same."

continued on the next page . . .

Question 7 (d) continued

Is Delyth correct?

Yes ☐ **No** ☐

You must give a reason for your answer.

[1 mark]

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: _____

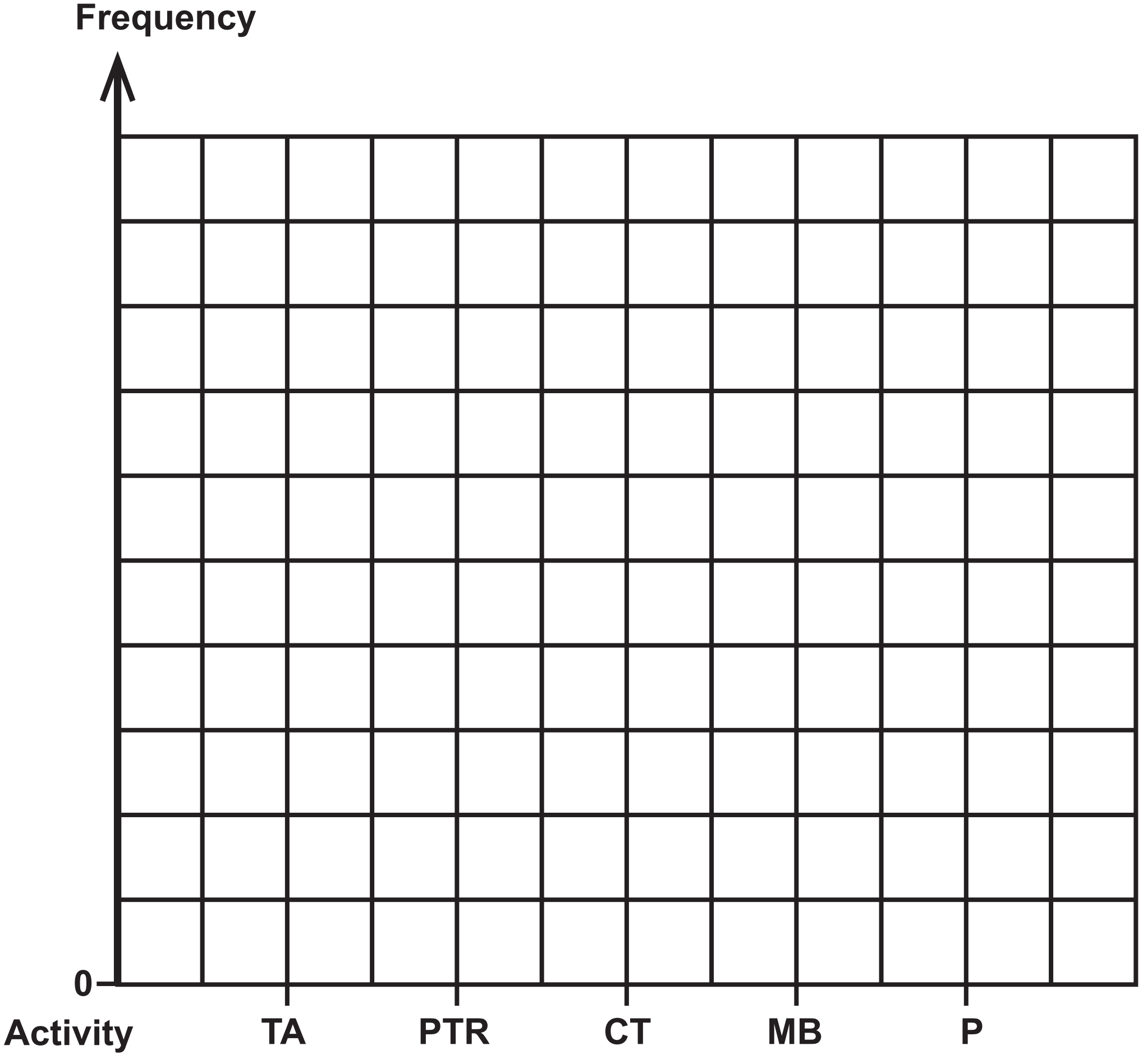
Candidate Number: 0_____

Question 1 (a)

Activity	Tally	Frequency
Tree – top adventure	𝍸 𝍸 |	
Park train ride	|||	
Castle tour	𝍸 |	
Mountain biking	𝍸 𝍸 |||	
Playground	𝍸 𝍸 𝍸	

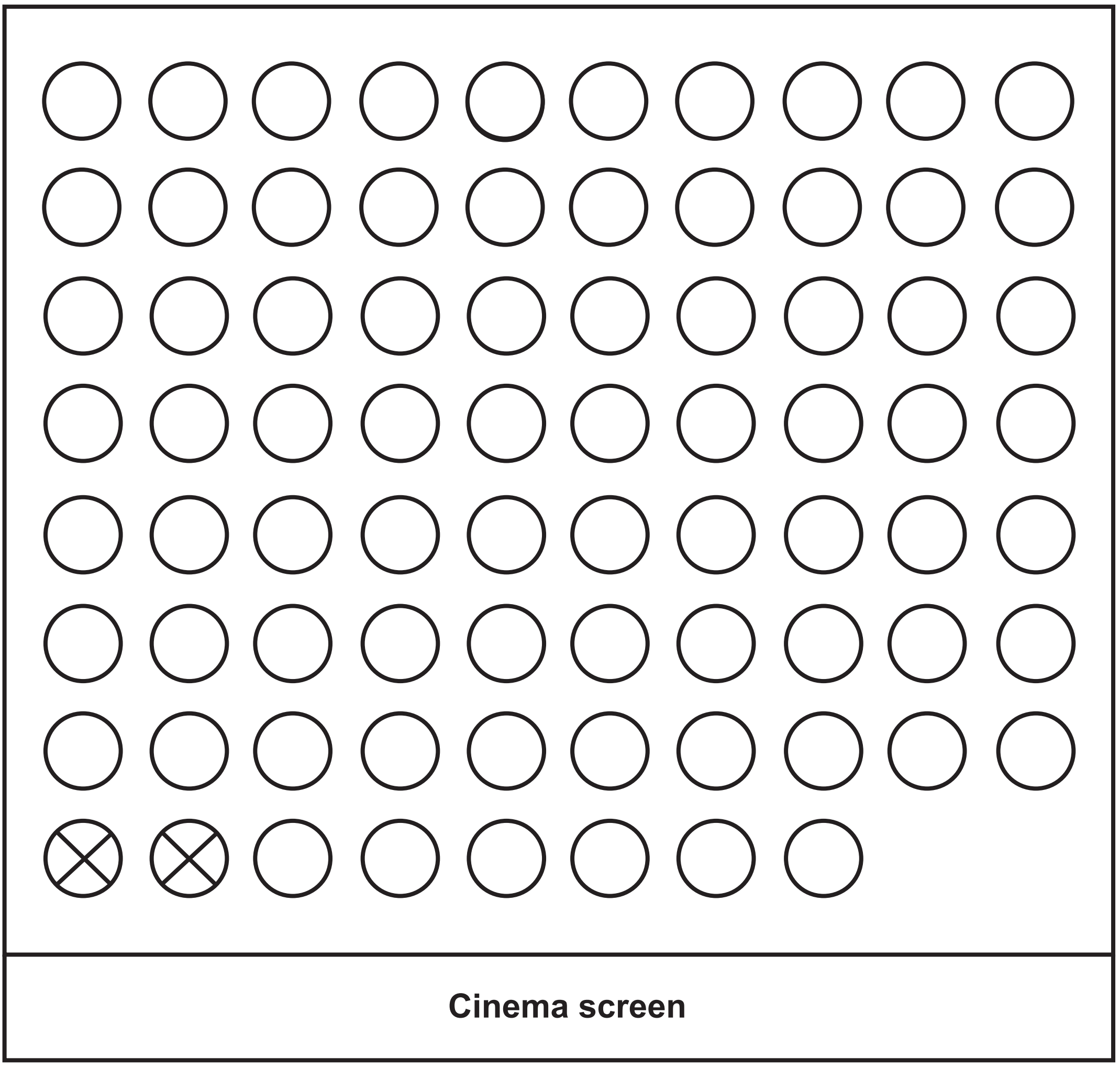
Question 1 (a) (iii)

Key: TA = Tree – top adventure
PTR = Park train ride
CT = Castle tour
MB = Mountain biking
P = Playground



Question 2 (b)

Key: ○ **cinema seat**



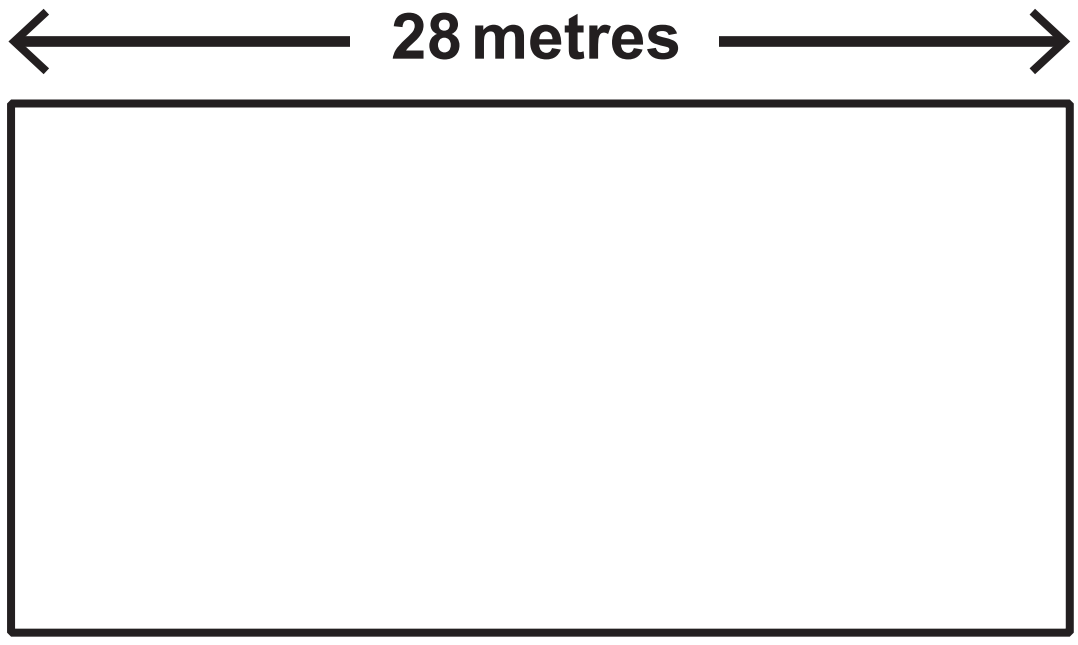
Question 2 (c)

Drinks		Snacks	
Small soft drink	£2.99	Regular popcorn	£4.95
Regular soft drink	£3.29	Large popcorn	£5.45
Large soft drink	£3.59	Nachos	£6.00

Combos			
Classic Combo: (regular soft drink & regular popcorn)	£6.99	Deluxe Combo: (large soft drink & large popcorn)	£7.60

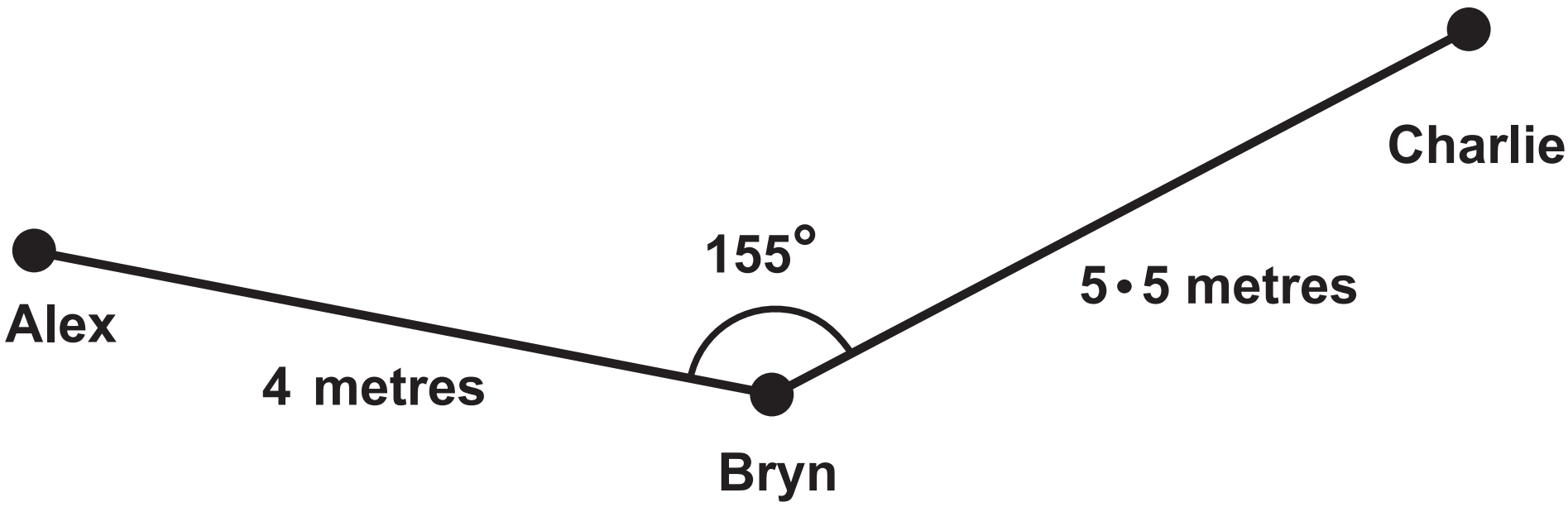
Question 3 (c)

Diagram IS drawn to scale



Question 3 (d)

Diagram NOT drawn to scale

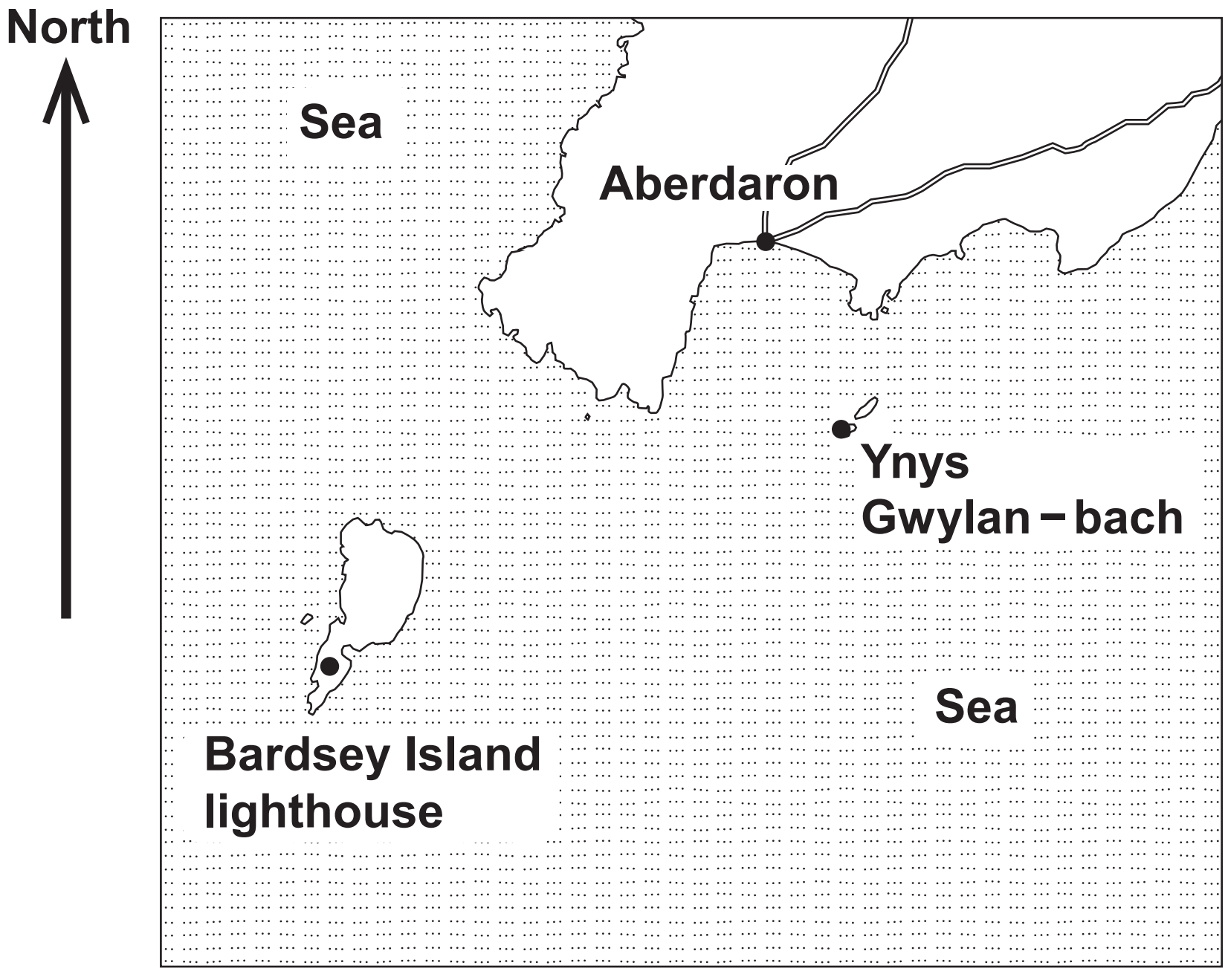


Question 3 (d) (ii)

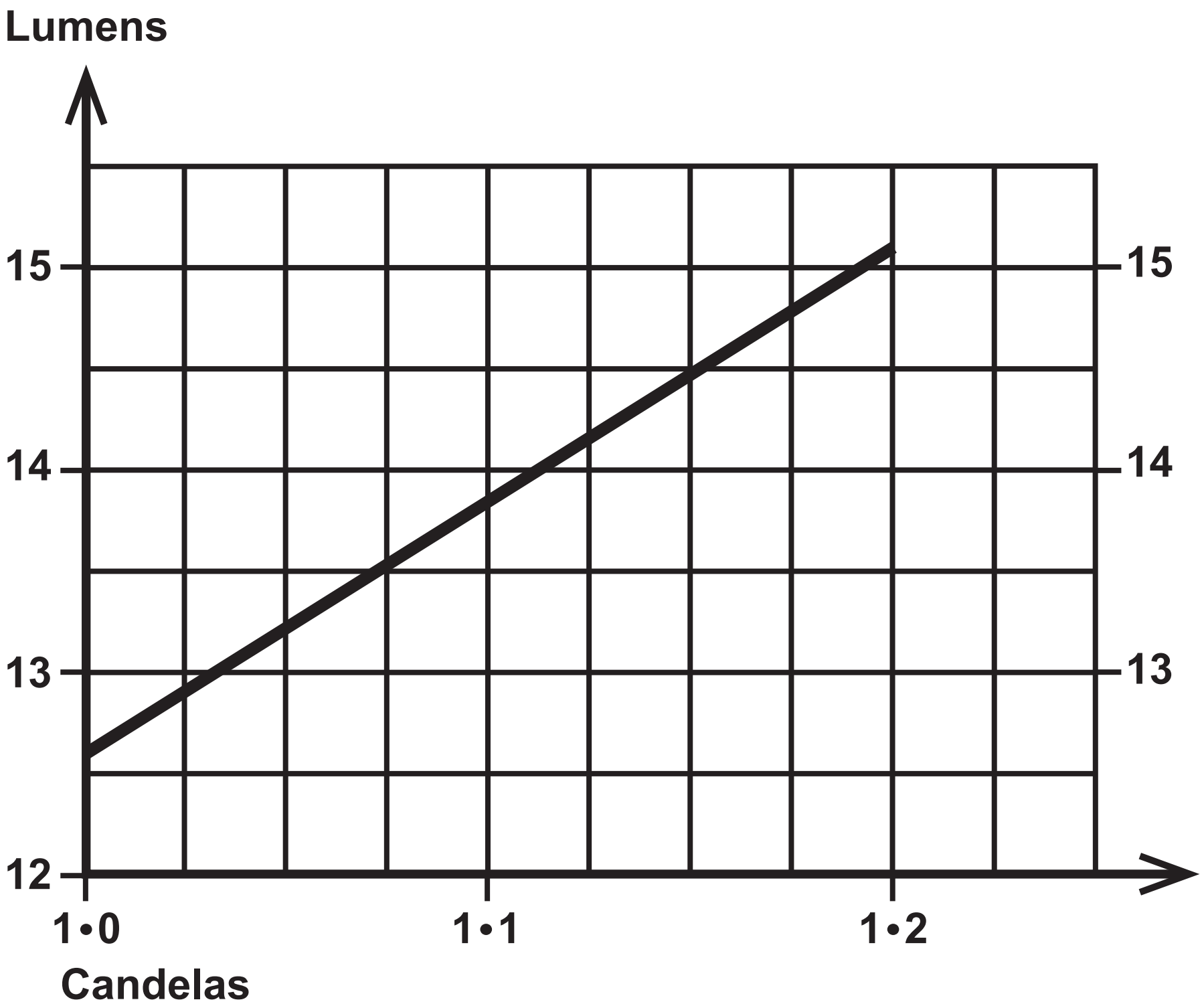
Diagram drawn to scale

Scale: 1 cm = 0•5 metres

Question 4 (a)


North
Sea
Aberdaron
Ynys
Gwylan – bach
Sea
Bardsey Island
lighthouse

Question 4 (b)

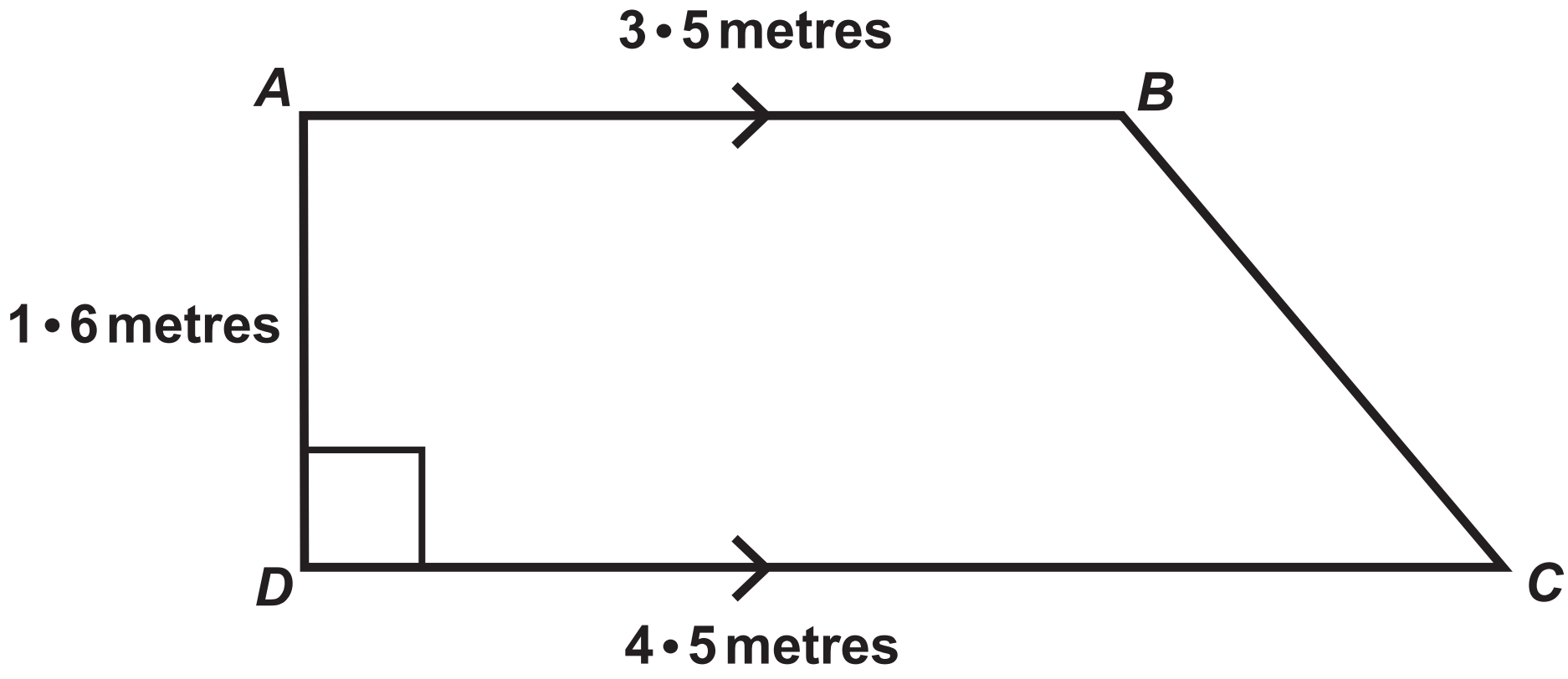


Question 6 (b)

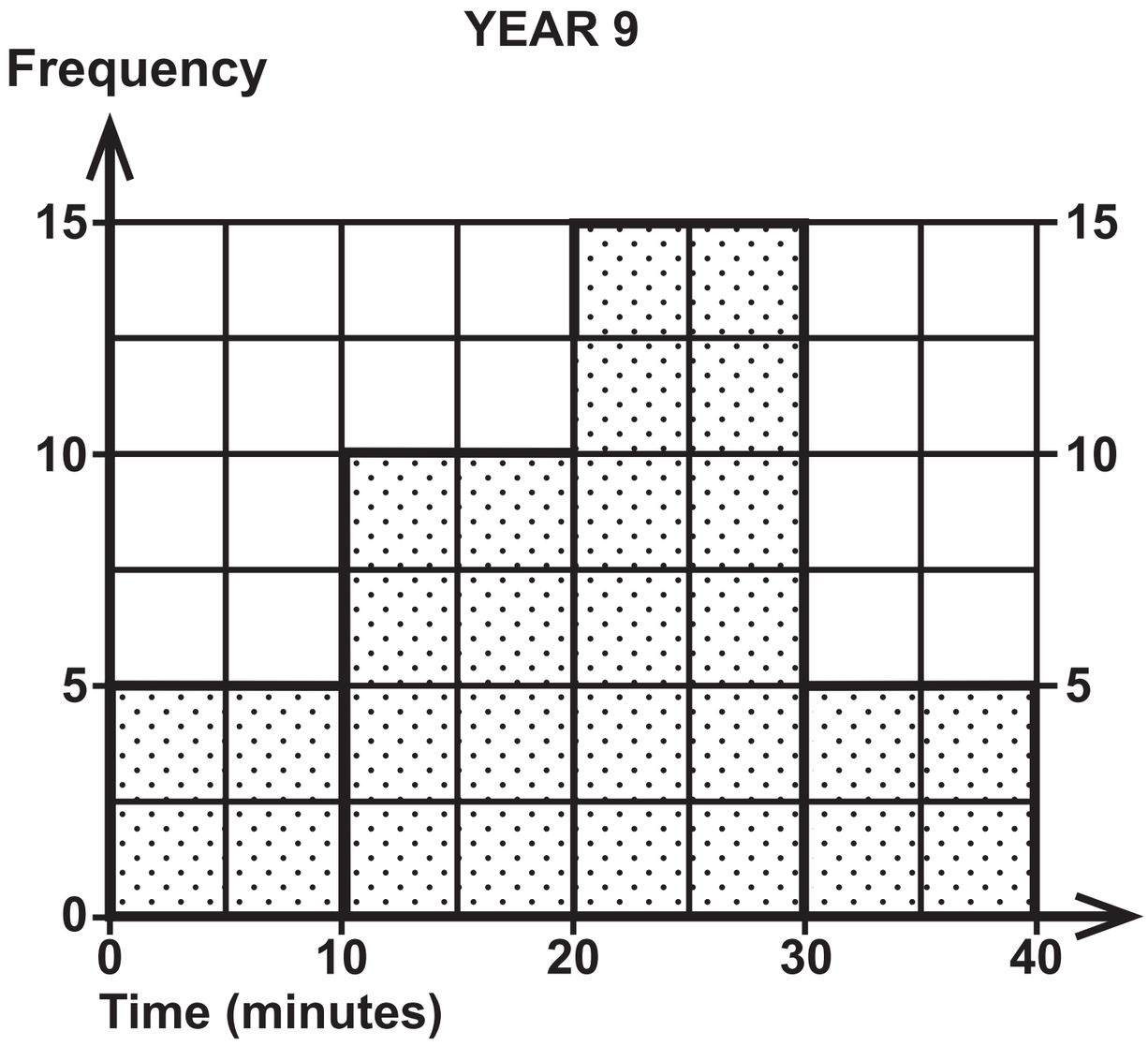
Bee Flower Mix 1 g packet of seeds £2.49	Cornfield Flower Mix 5 g packet of seeds £15	Butterfly Flower Mix 3 g packet of seeds £7.20

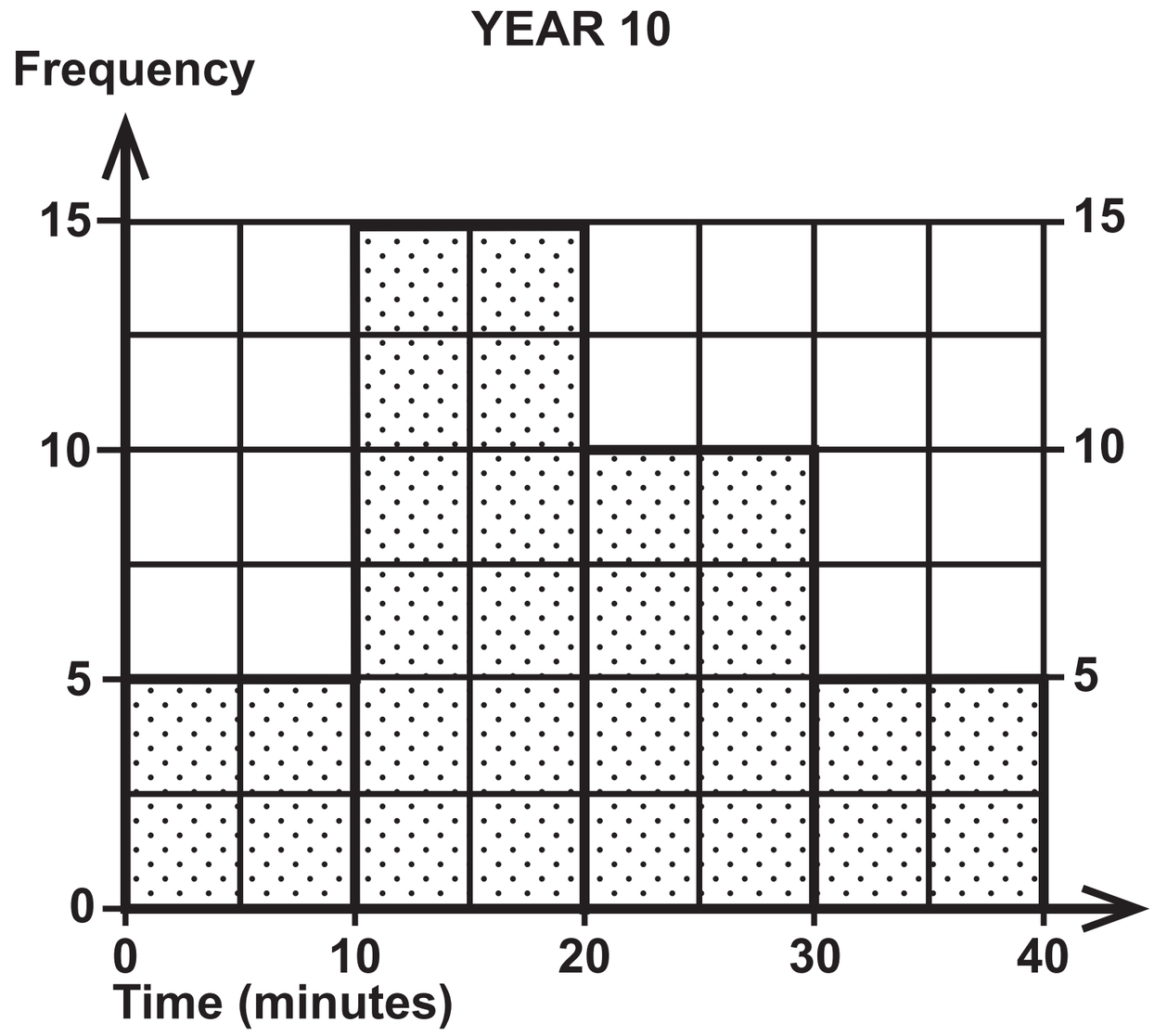
Question 6 (c)

Diagram NOT drawn to scale



Question 7


YEAR 9
Frequency
15
10
5
0
0
10
20
30
40
Time (minutes)


YEAR 10
Frequency
15
10
5
0
0
10
20
30
40
Time (minutes)

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MATHEMATICS – 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 $= \frac{1}{2}(a + b)h$