

**GCSE 3310U20-1**



**MATHEMATICS – NUMERACY**

**UNIT 2: CALCULATOR – ALLOWED  
FOUNDATION TIER**

**THURSDAY, 9 MAY  
2019 – MORNING**

**1 hour 30 minutes  
(plus your additional  
time allowance)**

**A CALCULATOR  
WILL BE REQUIRED  
FOR THIS PAPER**

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

<b>Surname:</b>	
<b>Other Names:</b>	
<b>Centre Number:</b>	
<b>Candidate Number:</b>	<b>0</b>

**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.**

**A spare Diagram Booklet.**

**(Turn over)**

**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 continuation pages at the back of the booklet. Question numbers must be given for all work written on the continuation page(s).**

**Take  $\pi$  as 3.14 or use the  $\pi$  button on your calculator.**

**(Turn over)**

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

**(Turn over)**

- 1. Look at the diagram for Question 1 in the separate Diagram Booklet.**

**Geraint went to a petrol station and put petrol in his car.**

**The diagram shows the display on the petrol pump.**

**Geraint put 30 litres of petrol in his car.**

**The price of petrol was 127.9 pence per litre.**

**The cost of the petrol was £38.37**

**continued on the next page . . .**

**(Turn over)**

**Question 1 continued**

**1. (a) The following week the price of petrol was 128.9 pence per litre.**

**Geraint put 40 litres of petrol in his car.**

**What was the cost of the petrol? Give your answer in POUNDS (£).**

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**(Turn over)**

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**Cost of 40 litres of petrol was**

**£** \_\_\_\_\_

**[3 marks]**

**continued on the next page . . .**

**(Turn over)**

**Question 1 continued**

**1. (b) The display below shows the cost of 35 litres of petrol.**

**Calculate the price per litre of petrol.**

**Give your answer in pence.**

<b>This Sale £</b>	<b>44.38</b>
<b>Litres</b>	<b>35.00</b>
<b>PENCE per litre</b>	<hr/>

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**(Turn over)**

**9**

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**[3 marks]**

**(Turn over)**

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

**In 2011, the number of people able to speak Welsh, and the number of people not able to speak Welsh, in each local authority in Wales were recorded.**

**The table shows some of this information.**

**continued on the next page . . .**

**(Turn over)**

**Question 2 continued**

- 2. (a) What is the number of people NOT ABLE to speak Welsh in Ceredigion written correct to the nearest THOUSAND?  
Circle your answer.**

<b>40 000</b>	<b>39 000</b>	<b>38 900</b>
	<b>38 000</b>	<b>38 800</b>

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**[1 mark]**

**continued on the next page . . .**

**(Turn over)**

**Question 2 continued**

- 2. (b) How many people were ABLE to speak Welsh in Caerphilly? Write your answer in words.**

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**[2 marks]**

**continued on the next page . . .**

**(Turn over)**

**Question 2 continued**

**2. (c) How many people were ABLE to speak Welsh in Swansea?  
Circle your answer.**

<b>435 978</b>	<b>204 823</b>	<b>231 155</b>
<b>26 332</b>	<b>22 786</b>	

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**[1 mark]**

**continued on the next page . . .**

**(Turn over)**

**Question 2 continued**

**2. (d) In total, how many people lived in Flintshire?**

**Circle your answer.**

<b>127 597</b>	<b>129 083</b>	<b>19 343</b>
<b>108 254</b>	<b>146 940</b>	

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**[1 mark]**

**continued on the next page . . .**

**(Turn over)**

**Question 2 continued**

- 2. (e) The Welsh Government wants to increase the number of people able to speak Welsh. Its target is ONE MILLION people by the year 2050**
- In 2011, it was recorded that there were 562 016 people able to speak Welsh in Wales.**
- How many more people able to speak Welsh are needed in Wales by 2050 for the Welsh Government to hit this target?**
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**(Turn over)**

**16**

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**[2 marks]**

**(Turn over)**

- 3. (a) Look at the diagram for Question 3 (a) in the separate Diagram Booklet.**

**The diagram shows a shape on a square grid. In the diagram, each square on the grid represents a one centimetre square.**

**Scale: 1 cm represents 1 metre.**

**Mr Owen wants to tidy up his garden.**

**The shape shown is the outline of Mr Owen's garden drawn to scale.**

**continued on the next page . . .**

**(Turn over)**

**Question 3 (a) continued**

**Mr Owen pays a gardener  
£12.50 per m<sup>2</sup> to prepare  
the garden.**

**Calculate how much Mr Owen  
pays the gardener.**

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**(Turn over)**

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**Mr Owen pays the gardener**

**£** \_\_\_\_\_

**[4 marks]**

**continued on the next page . . .**

**(Turn over)**

**Question 3 continued**

**3. (b) Look at the diagram for Question 3 (b) in the separate Diagram Booklet.**

**In the diagram, each square on the grid represents a one centimetre square.**

**Scale: 1 cm represents 1 metre.**

**Mr Owen wants a circular patio in his garden.**

**The radius of the patio is 3 m.**

***P* is the centre of the patio.**

**Using a pair of compasses, draw the patio on the scale drawing of the garden.**

**[2 marks]**

**(Turn over)**

**Question 3 continued**

**3. (c) What is the diameter of the patio?**

**Circle your answer.**

<b>1.5 m</b>	<b>12 m</b>	<b>3 m</b>	<b>6 m</b>	<b>9 m</b>
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**[1 mark]**

**(Turn over)**

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

**140 pupils are going to a concert.**

**The table below shows the cost of the different types of ticket.**

<b>TICKET</b>	<b>COST PER TICKET</b>
<b>Seated</b>	<b>£84.50</b>
<b>Standing</b>	<b>£49.50</b>

**continued on the next page . . .**

**(Turn over)**

**Question 4 continued**

**Of these 140 pupils:**

- **35% have bought SEATED tickets,**
- **the remaining pupils have bought STANDING tickets.**

**Calculate the total cost of the tickets bought by the 140 pupils.**

**You must show all your working.**

**[6 marks + 2 marks OCW]**

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**(Turn over)**





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**(Turn over)**

**5. Look at the diagram for Question 5 in the separate Diagram Booklet. The diagram is NOT drawn to scale. The diagram represents a snooker table.**

**The dotted lines on the diagram show the path of a ball as it bounces off the side of the table.**

**(a) Find the size of angle  $y$ .**

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**(Turn over)**

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**[2 marks]**

**continued on the next page . . .**

**(Turn over)**

**Question 5 continued**

5. (b) What is the special name given to angle  $y$ ?

<b>right angle</b>
<b>obtuse angle</b>
<b>acute angle</b>
<b>reflex angle</b>
<b>straight angle</b>

**[1 mark]**

**continued on the next page . . .**

**(Turn over)**

**Question 5 continued**

- 5. (c) Look at the diagram for Question 5 (c) in the separate Diagram Booklet.**

**All the red balls at the beginning of a snooker game are placed on the table in the shape of an equilateral triangle.**

**The diagram shows PART of the pattern of how the red balls are placed.**

**There are 5 ROWS of red balls in the complete pattern.**

**continued on the next page . . .**

**(Turn over)**

**Question 5 (c) continued**

**Denise says,**

**“There are 15 red balls on the table at the beginning of a snooker game”.**

**Using the pattern of balls given in the diagram, show that Denise is correct.**

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**(Turn over)**

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**[1 mark]**

**continued on the next page . . .**

**(Turn over)**

**Question 5 continued**

- 5. (d) There are 22 balls on the table at the beginning of a snooker game. 15 of the balls are red. Denise picks one ball, at random, from the table at the beginning of a game. Which of the words below describes the chance that she will pick a red ball? Circle your answer.**

<b>certain</b>	<b>likely</b>	<b>even chance</b>
<b>unlikely</b>	<b>impossible</b>	

**[1 mark]**

**(Turn over)**

**6. Ian owns two shops.**

**One is in Ffordd Owain and the other is in Arthur Avenue.**

**For each shop, Ian has been presented with the sunglasses sales for last week.**

**Look at the diagrams for Question 6 in the separate Diagram Booklet.**

**Diagram 1 is a pie chart showing the daily sunglasses sales in the Ffordd Owain shop.**

**Diagram 2 is a pictogram showing the daily sunglasses sales in the Arthur Avenue shop.**

**continued on the next page . . .**

**(Turn over)**

**Question 6 continued**

**6. (a) For each shop, what fraction of the sunglasses sold last week was sold on Friday?  
Express your answers as fractions in their simplest terms.**

**(i) Ffordd Owain:**

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**Fraction, in its simplest terms**

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**[2 marks]**

**(Turn over)**

**Question 6 (a) continued**

**6. (a) (ii) Arthur Avenue:**

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**Fraction, in its simplest terms**

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**[2 marks]**

**continued on the next page . . .**

**(Turn over)**

**Question 6 continued**

**6. (b) At the Arthur Avenue shop,  
what percentage of the  
sunglasses sold last week was  
sold on Tuesday?**

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**(Turn over)**

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**[2 marks]**

**continued on the next page . . .**

**(Turn over)**

**Question 6 continued**

**6. (c) On Saturday, how many more sunglasses were sold in the Ffordd Owain shop than in the Arthur Avenue shop?**

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**(Turn over)**

**40**

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**[5 marks]**

**(Turn over)**

**7. (a) Edmund needs carrots to make soup.**

**His two local supermarkets are SuperM and FairMart.**

**450 g of carrots cost 27p in SuperM.**

**The same variety of carrots cost 57p per kg in FairMart.**

**Edmund wants to buy carrots that are the best value for money.**

**Should he buy carrots from SuperM or from FairMart?**

**Give a reason for your answer.**

**You must show all your working.**

**(Turn over)**





**Question 7 continued**

7. (b) **Edmund plans to use the recipe shown below to make soup.**

**CARROT SOUP,  
SERVES 4 PEOPLE**

**450 grams carrots**

**0.8 litres stock**

**4 tablespoons of cream**

**2 onions**

**continued on the next page . . .**

**(Turn over)**

**Question 7 continued**

**He starts to write the recipe for serving 25 people.**

**CARROT SOUP TO SERVE  
25 PEOPLE**

\_\_\_\_\_ grams carrots

\_\_\_\_\_ litres stock

\_\_\_\_\_ tablespoons of cream

\_\_\_\_\_ **WHOLE** onions

**Edmund does not want part of an onion left over. Complete the recipe for Edmund.**

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**(Turn over)**



**47**

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**[3 marks]**

**(Turn over)**

**8. Rhys lives in St Asaph.**

**He wants to video call friends in Montreal, New Delhi and Sydney.**

**(a) Look at the table for Question 8 (a) in the separate Diagram Booklet.**

**The table shows times around the world when it is 12:30 in St Asaph.**

**continued on the next page . . .**

**(Turn over)**

**Question 8 (a) continued**

**8. (a) (i) When it is 23:30 on Saturday in St Asaph, what time and day is it in Montreal?  
Circle your answer.**

<b>04:30 Sunday</b>	<b>07:30 Saturday</b>	<b>18:30 Saturday</b>
	<b>02:30 Saturday</b>	<b>12:30 Saturday</b>

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**[1 mark]**

**(Turn over)**

**Question 8 (a) continued**

**8. (a) (ii) When it is 01:00 on Sunday in Sydney, what time and day is it in St Asaph?**

**Circle your answer.**

<b>16:00 Sunday</b>	<b>16:00 Saturday</b>	<b>10:00 Sunday</b>
	<b>10:00 Saturday</b>	<b>06:00 Monday</b>

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**[1 mark]**

**(Turn over)**

**Question 8 continued**

**8. (b) 1 Australian dollar (AUD) is worth £0.61**

**How much is £320 worth in Australian dollars?**

**Give your answer to the nearest Australian dollar.**

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**£320 = \_\_\_\_\_ AUD**

**[2 marks]**

**(Turn over)**

9.

**ICE SKATE HIRE CHARGES**

**Hire any pair of ice skates for £3.25**

**PLUS**

**£2.40 for every hour or part  
of an hour hired\***

**\*any minute or more into the next hour  
is charged as 1 hour**

**(a) Bryn returns his hired ice skates  
after 3 hours 38 minutes.**

**How much will the total charge  
be for hiring these ice skates?**

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**(Turn over)**

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**[2 marks]**

**continued on the next page . . .**

**(Turn over)**

**Question 9 continued**

**9. (b) Beth pays £8.05 to hire ice skates.**

**What is the minimum whole number of minutes that she could have hired the ice skates for before returning them?**

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**(Turn over)**



- 10. (a) A survey was carried out to find out how often people used the swimming pool in a sports centre.**
- The following two questions were asked in a questionnaire.**

**Q1. How far away from the sports centre do you live?**

**Q2. How often do you go swimming?**

- (i) Give ONE reason why question 1 is a useful question to ask.**

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**[1 mark]**

**10. (a) (ii) Explain why the answers to question 2 might be difficult to analyse.**

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**[1 mark]**

**continued on the next page . . .**

**(Turn over)**

**Question 10 (a) continued**

**10. (a) (iii) A person answers that they go swimming.**

**Write a question that could be used to find out how long this person spends in the pool, on average, each time they go swimming.**

**You must give groups for collecting the data.**

**Question:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**Question 10 continued**

**10. (b) Look at the diagram for Question 10 (b) in the separate Diagram Booklet.**

**The diagram is a graph.**

**Jamil works at the HAFAN PARC swimming pool.**

**He records the temperature of the water in the pool from 8 a.m. to 11:30 a.m.**

**Jamil draws the graph shown.**

**continued on the next page . . .**

**(Turn over)**

**Question 10 (b) continued**

**Use the graph to answer the following questions about the temperature of the water between 8 a.m. and 11:30 a.m.**

**10. (b) (i) What is the range of the temperature of the water?**

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**[1 mark]**

**continued on the next page . . .**

**(Turn over)**

**Question 10 continued**

**10. (b) (ii) For swimming, the most suitable temperature of the water in the pool is between  $27^{\circ}\text{C}$  and  $28^{\circ}\text{C}$  inclusive. Find the length of time that the water in the pool was most suitable for swimming. Give your answer in minutes.**

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**(Turn over)**

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**The water was most suitable for**

**\_\_\_\_\_ minutes**

**[1 mark]**

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**END OF PAPER**

**TOTAL 65 MARKS**

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**(Turn over)**









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**MATHEMATICS – NUMERACY**

**UNIT 2: CALCULATOR – ALLOWED**

**FOUNDATION TIER**

**THURSDAY, 9 MAY 2019 – MORNING**

# **Diagram Booklet**

<b>Surname:</b>	
<b>Other Names:</b>	
<b>Centre Number:</b>	
<b>Candidate Number:</b>	<b>0</b>

# Question 1

<b>£</b>	<b>38.37</b>	<b>This sale</b>
	<b>30.00</b>	<b>Litres</b>
<b>Pence per litre</b>		
	<b>127.9</b>	

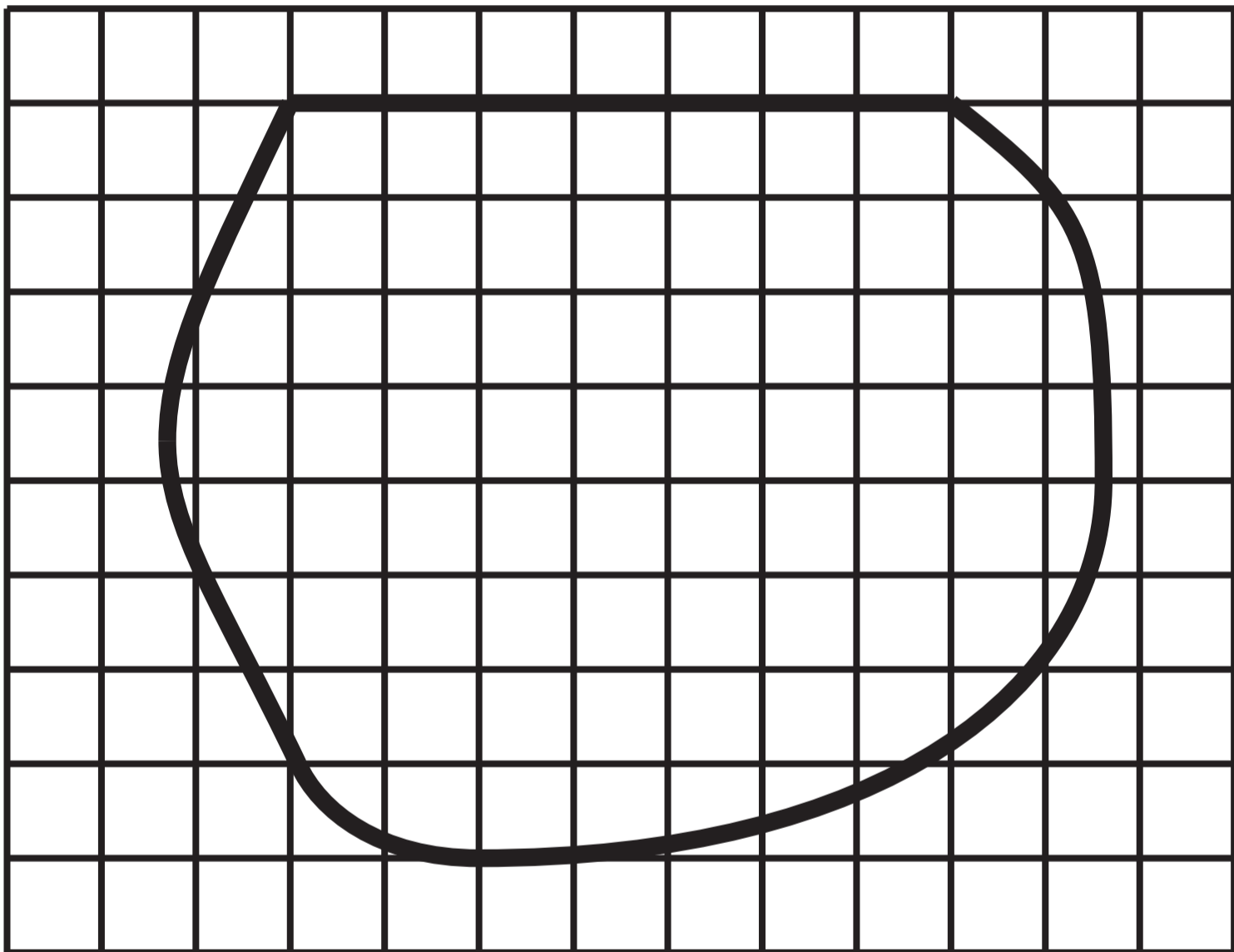
## Question 2 Table

<b>LOCAL AUTHORITY</b>	<b>ABLE TO SPEAK WELSH</b>	<b>NOT ABLE TO SPEAK WELSH</b>	<b>TOTAL</b>
<b>Isle of Anglesey</b>	<b>38 568</b>	<b>28 835</b>	<b>67 403</b>
<b>Gwynedd</b>	<b>77 000</b>	<b>40 789</b>	<b>117 789</b>
<b>Denbighshire</b>	<b>22 236</b>	<b>68 291</b>	<b>90 527</b>
<b>Flintshire</b>	<b>19 343</b>	<b>127 597</b>	
<b>Powys</b>	<b>23 990</b>	<b>105 093</b>	<b>129 083</b>
<b>Ceredigion</b>	<b>34 964</b>	<b>38 883</b>	<b>73 847</b>
<b>Pembrokeshire</b>	<b>22 786</b>	<b>95 606</b>	<b>118 392</b>
<b>Swansea</b>		<b>204 823</b>	<b>231 155</b>
<b>Cardiff</b>	<b>36 735</b>	<b>295 538</b>	<b>332 273</b>
<b>Caerphilly</b>	<b>19 251</b>	<b>152 721</b>	<b>171 972</b>
<b>Newport</b>	<b>13 002</b>	<b>126 847</b>	<b>139 849</b>

### Question 3 (a)

In the diagram below, each square on the grid represents a one centimetre square.

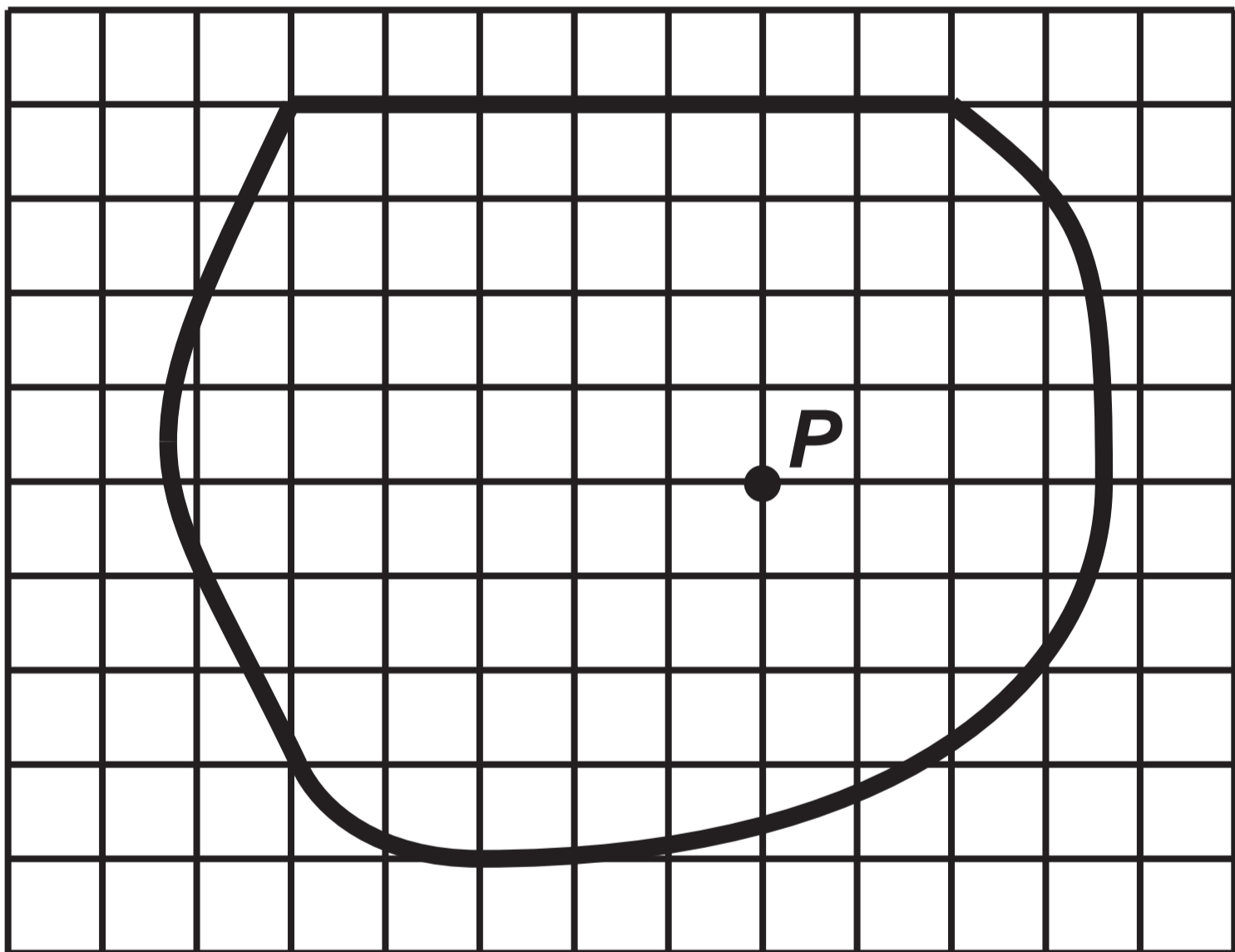
Scale: 1 cm represents 1 metre



### Question 3 (b)

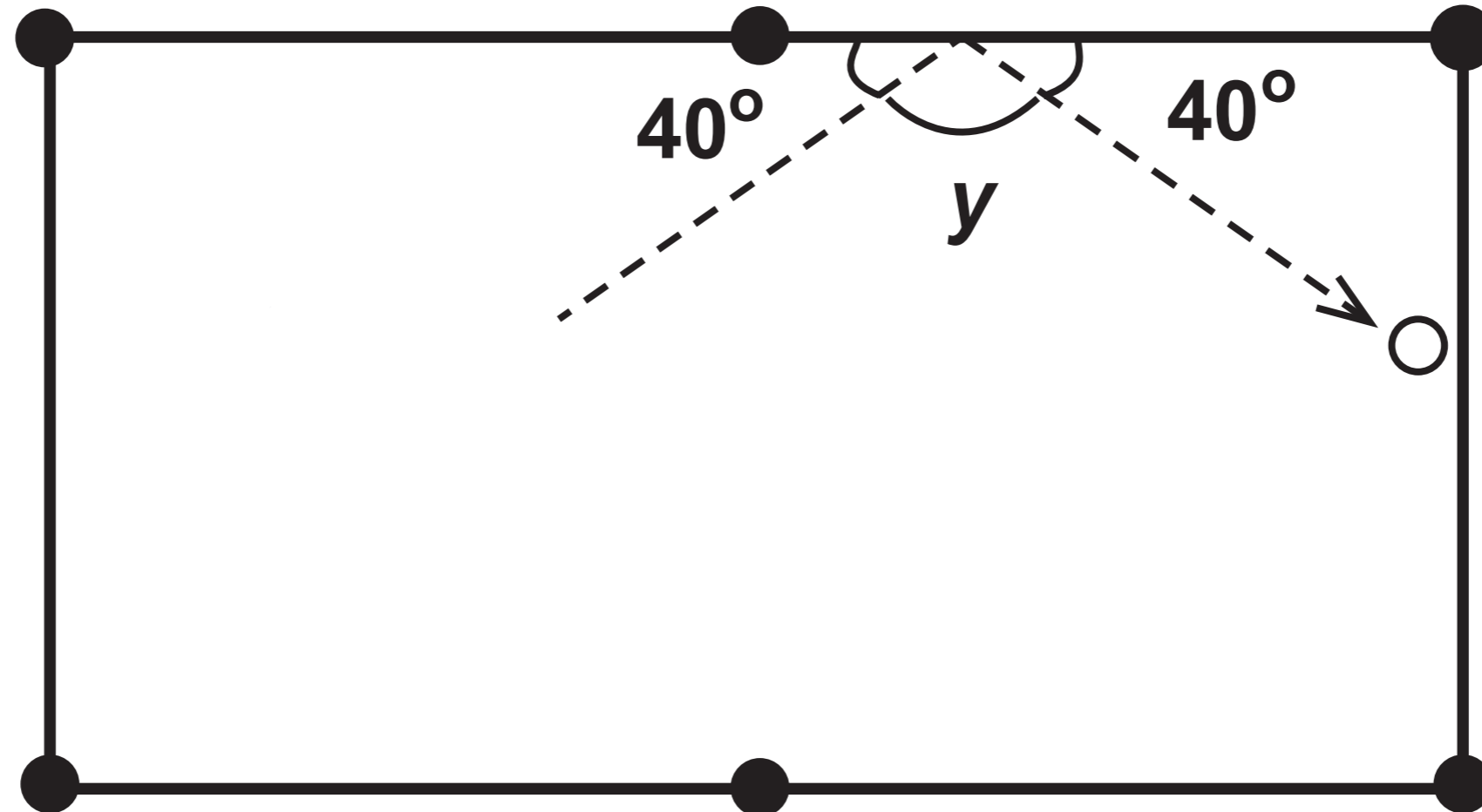
In the diagram below, each square on the grid represents a one centimetre square.

Scale: 1 cm represents 1 metre

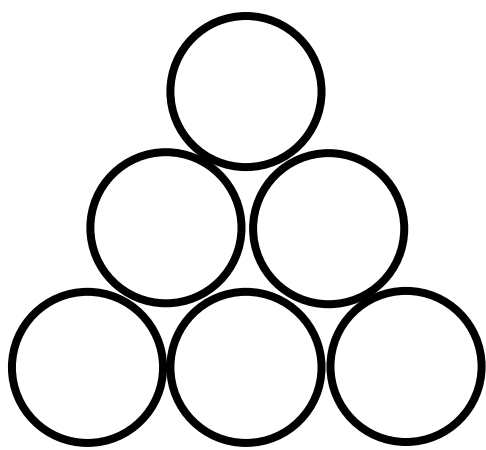


# Question 5

Diagram NOT drawn to scale



## Question 5 (c)

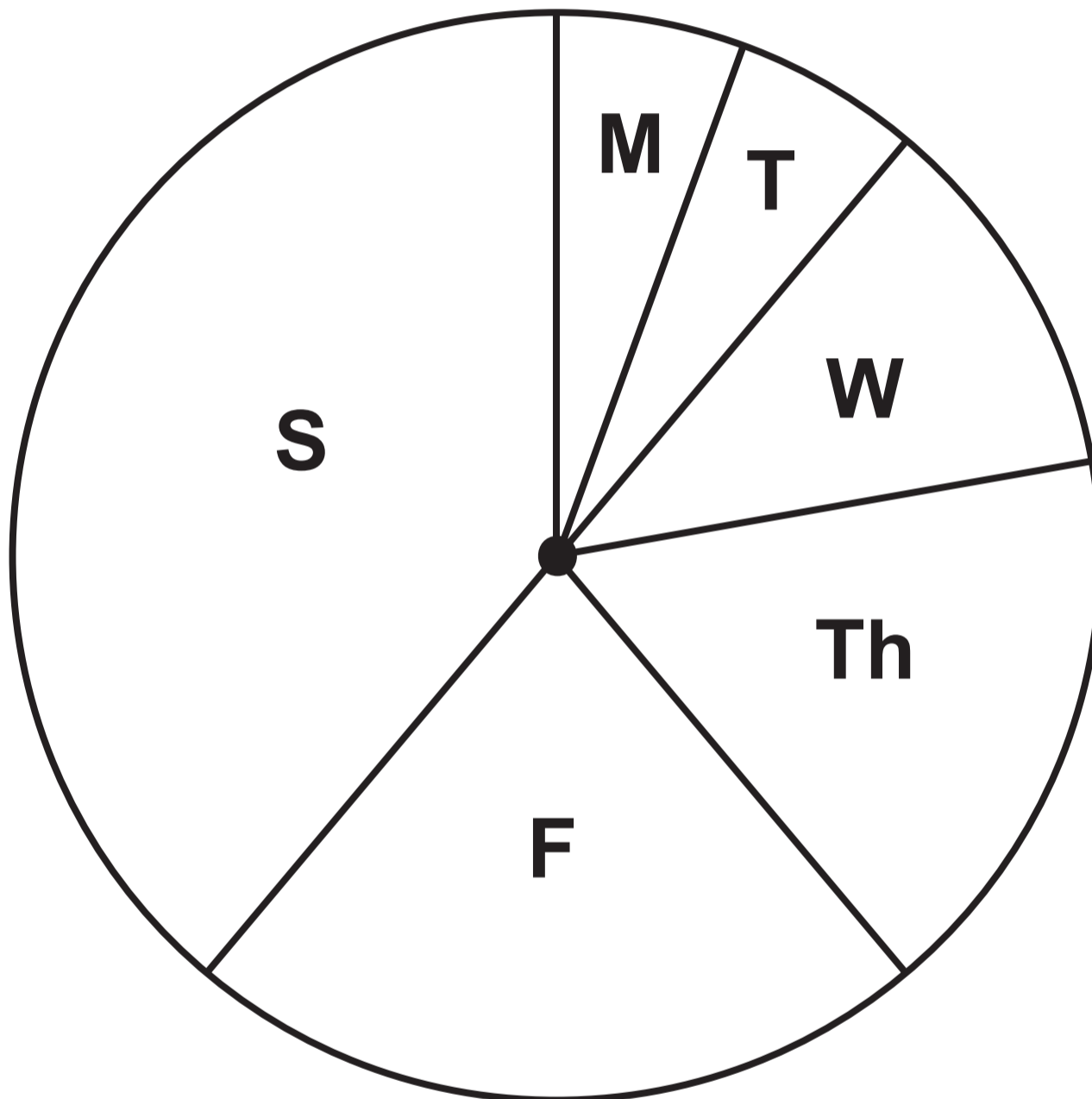


## Question 6

### Diagram 1

### FFORDD OWAIN DAILY SUNGLASSES SALES FOR LAST WEEK

In total, 90 pairs of sunglasses were sold.



















**Key:** M - Monday  
T - Tuesday  
W - Wednesday  
Th - Thursday  
F - Friday  
S - Saturday

## Question 6

### Diagram 2

# ARTHUR AVENUE DAILY SUNGLASSES SALES FOR LAST WEEK

Key:  represents 4 pairs of sunglasses

<b>Monday</b>	 
<b>Tuesday</b>	 
<b>Wednesday</b>	 
<b>Thursday</b>	 
<b>Friday</b>	   
<b>Saturday</b>	   

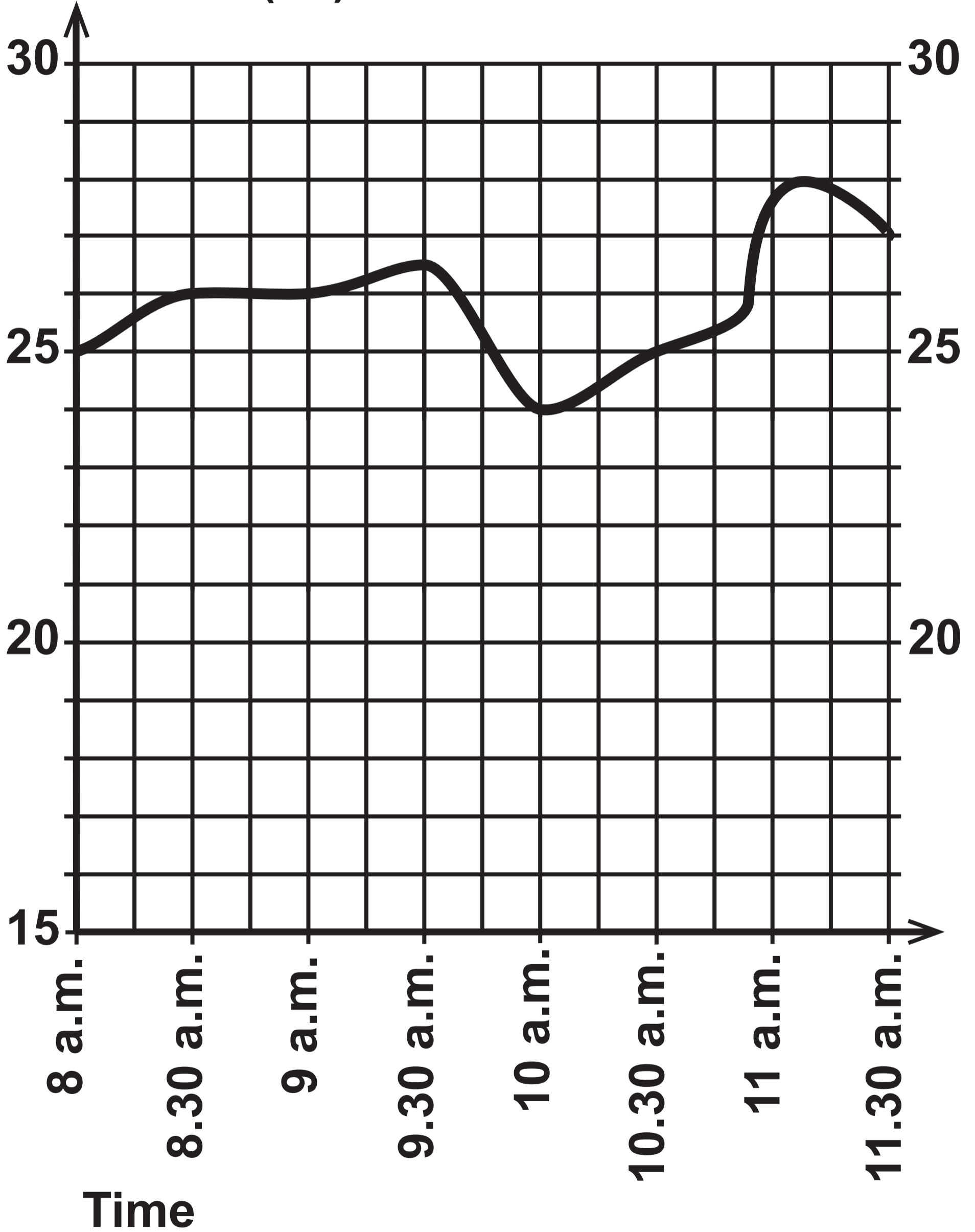
## Question 8 (a)

### Table

<b>CITY</b>	<b>TIME</b>	<b>DAY</b>
<b>St Asaph</b>	<b>12:30</b>	<b>Saturday</b>
<b>Montreal</b>	<b>07:30</b>	<b>Saturday</b>
<b>New Delhi</b>	<b>17:00</b>	<b>Saturday</b>
<b>Sydney</b>	<b>21:30</b>	<b>Saturday</b>

# Question 10 (b)

Temperature  
of the water ( $^{\circ}\text{C}$ )



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**MATHEMATICS – NUMERACY**

**UNIT 2: CALCULATOR – ALLOWED**

**FOUNDATION TIER**

**THURSDAY, 9 MAY 2019 – MORNING**

# **Spare Diagram Booklet**

<b>Surname:</b>	
<b>Other Names:</b>	
<b>Centre Number:</b>	
<b>Candidate Number:</b>	<b>0</b>

# Question 1

£

**38.37**

**This sale**

**30.00**

**Litres**

**Pence per litre**

**127.9**

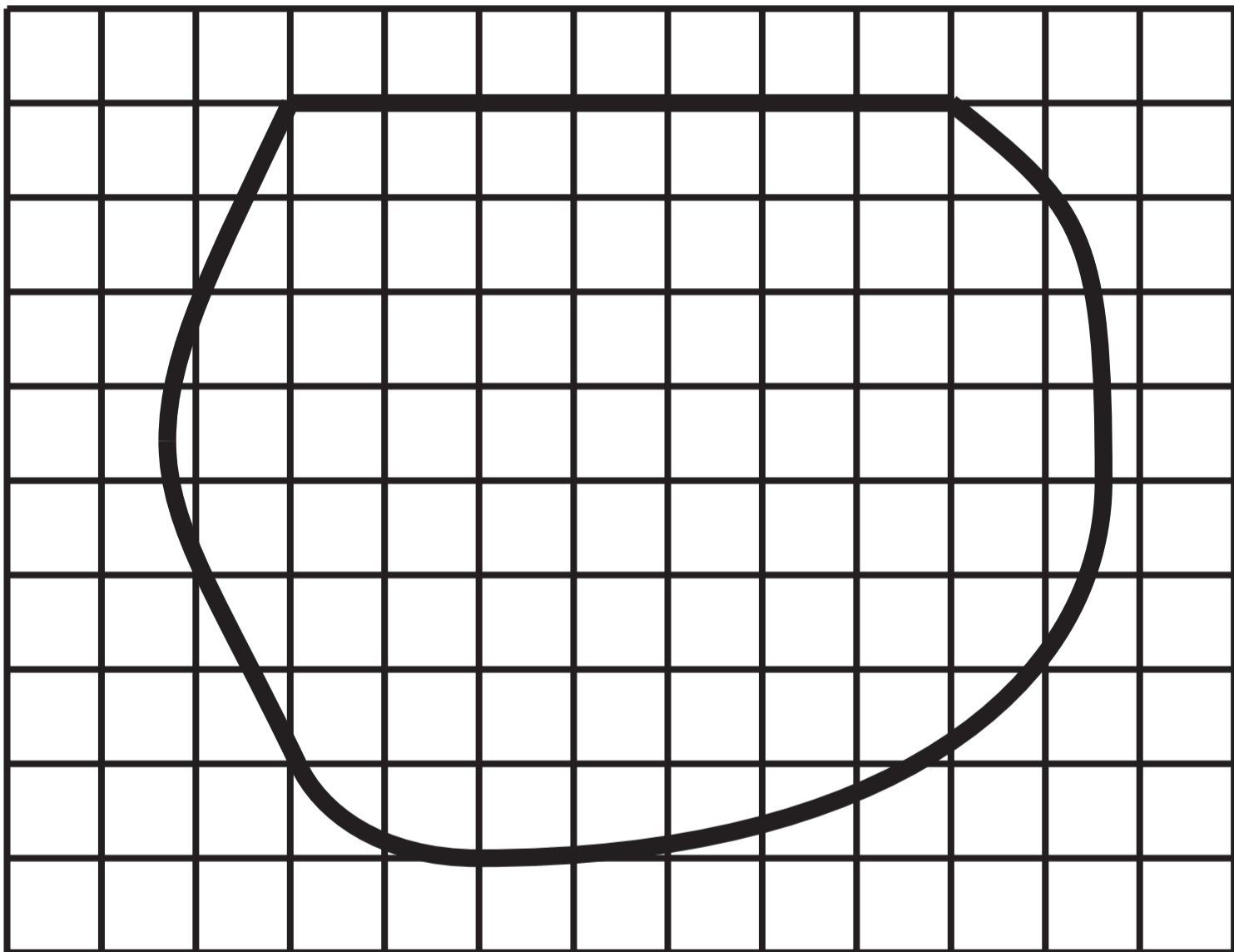
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<b>Denbighshire</b>	<b>22 236</b>	<b>68 291</b>	<b>90 527</b>
<b>Flintshire</b>	<b>19 343</b>	<b>127 597</b>	
<b>Powys</b>	<b>23 990</b>	<b>105 093</b>	<b>129 083</b>
<b>Ceredigion</b>	<b>34 964</b>	<b>38 883</b>	<b>73 847</b>
<b>Pembrokeshire</b>	<b>22 786</b>	<b>95 606</b>	<b>118 392</b>
<b>Swansea</b>		<b>204 823</b>	<b>231 155</b>
<b>Cardiff</b>	<b>36 735</b>	<b>295 538</b>	<b>332 273</b>
<b>Caerphilly</b>	<b>19 251</b>	<b>152 721</b>	<b>171 972</b>
<b>Newport</b>	<b>13 002</b>	<b>126 847</b>	<b>139 849</b>

### Question 3 (a)

In the diagram below, each square on the grid represents a one centimetre square.

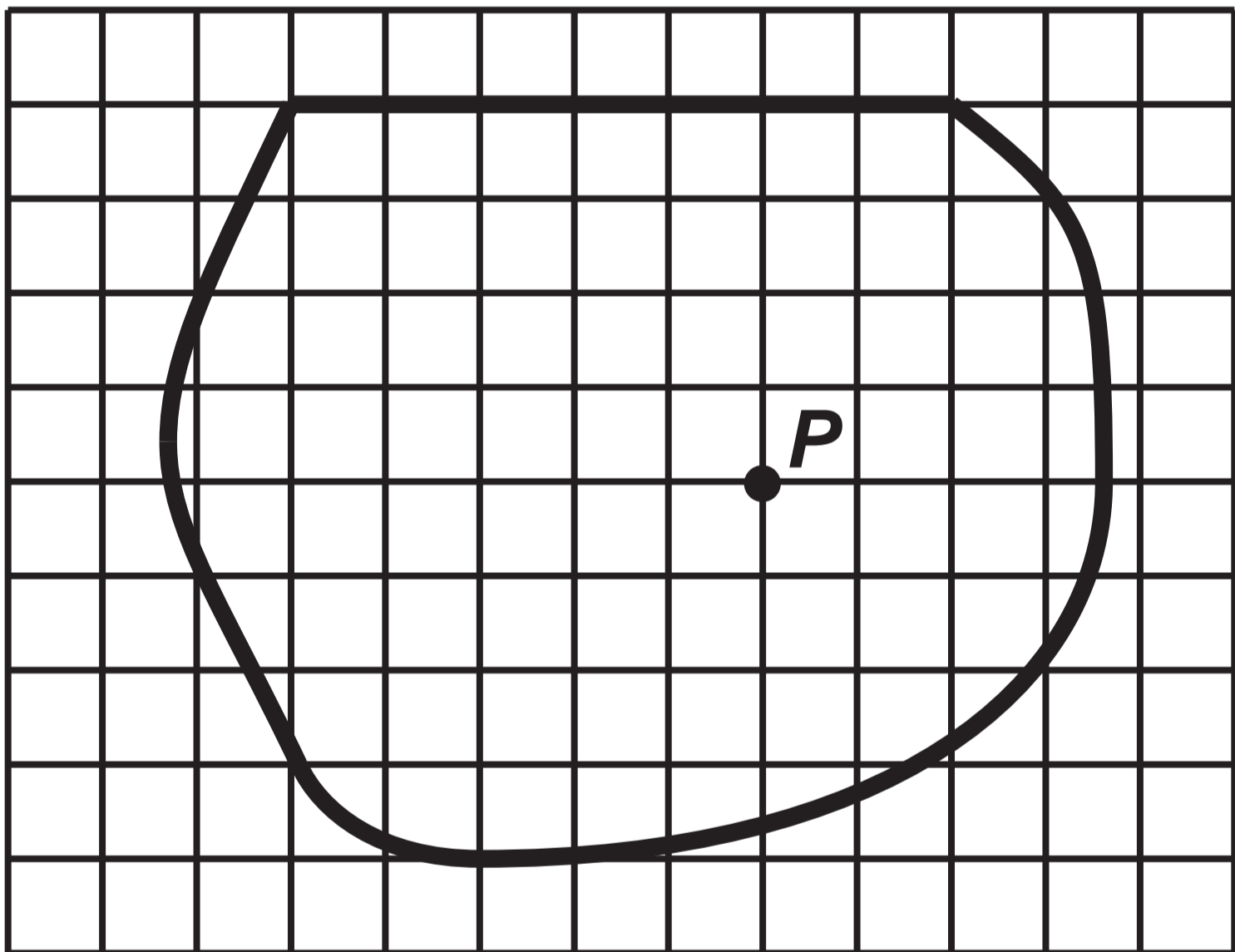
Scale: 1 cm represents 1 metre



### Question 3 (b)

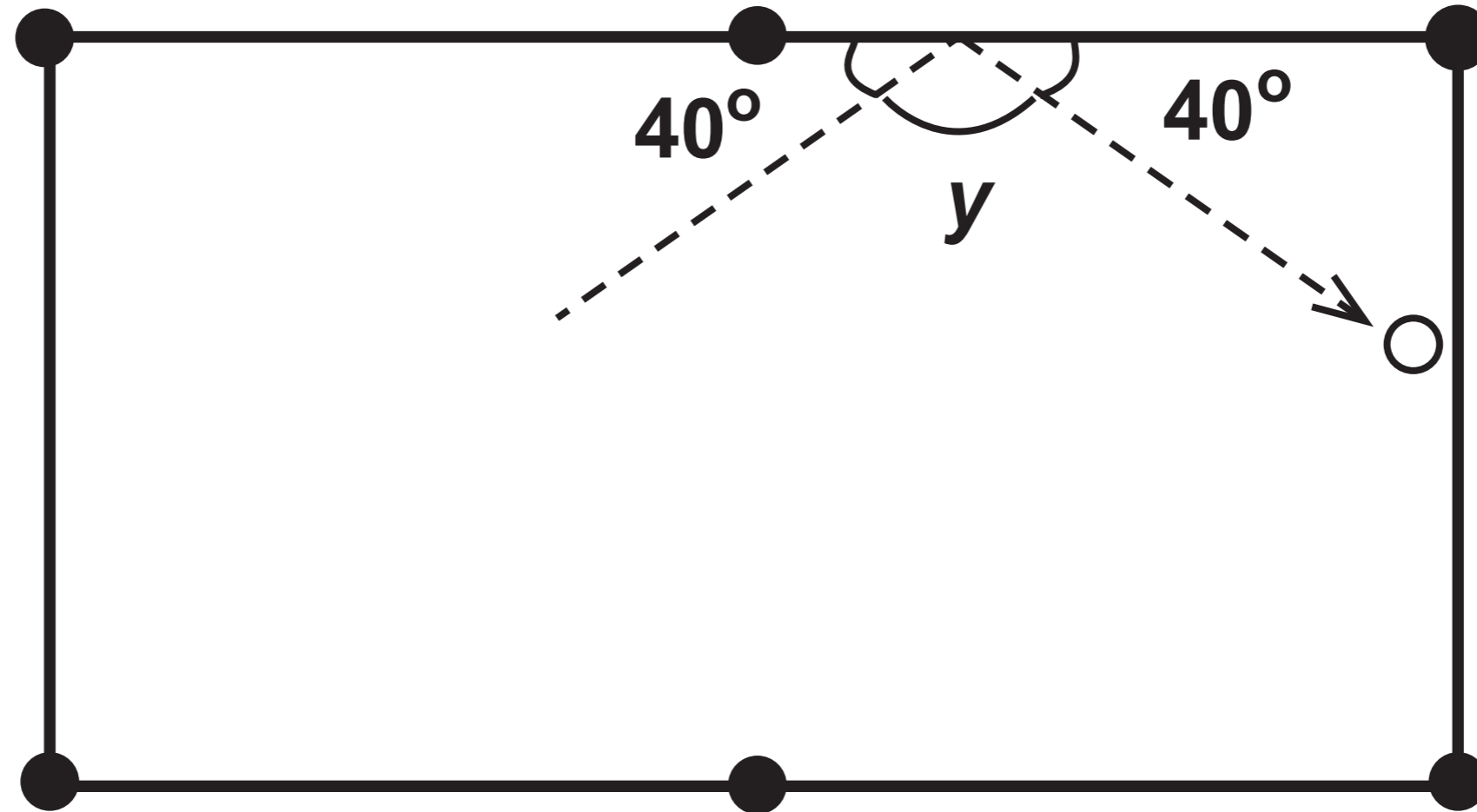
In the diagram below, each square on the grid represents a one centimetre square.

Scale: 1 cm represents 1 metre

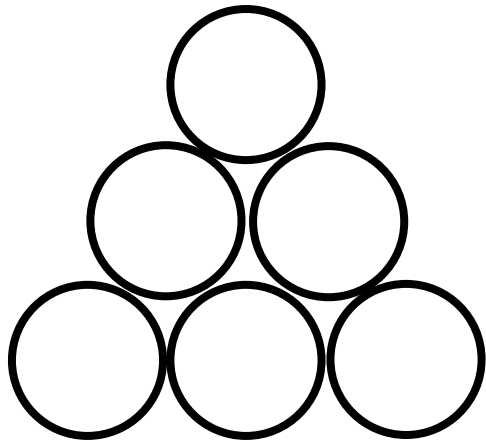


# Question 5

Diagram NOT drawn to scale



## Question 5 (c)

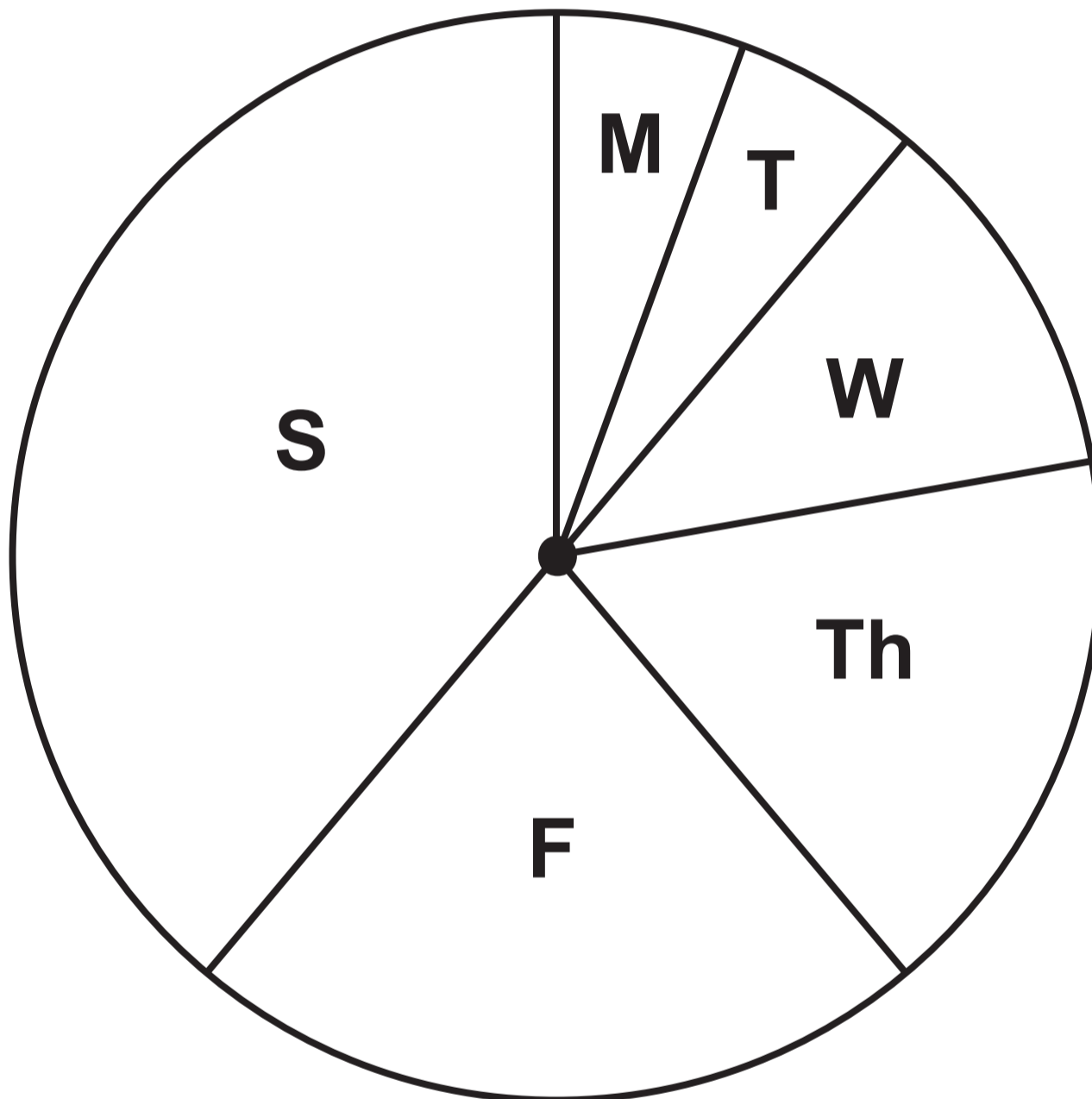


## Question 6

### Diagram 1

### FFORDD OWAIN DAILY SUNGLASSES SALES FOR LAST WEEK

In total, 90 pairs of sunglasses were sold.



















**Key:** M - Monday  
T - Tuesday  
W - Wednesday  
Th - Thursday  
F - Friday  
S - Saturday

## Question 6

### Diagram 2

# ARTHUR AVENUE DAILY SUNGLASSES SALES FOR LAST WEEK

Key:  represents 4 pairs of sunglasses

<b>Monday</b>	 
<b>Tuesday</b>	 
<b>Wednesday</b>	 
<b>Thursday</b>	 
<b>Friday</b>	   
<b>Saturday</b>	   

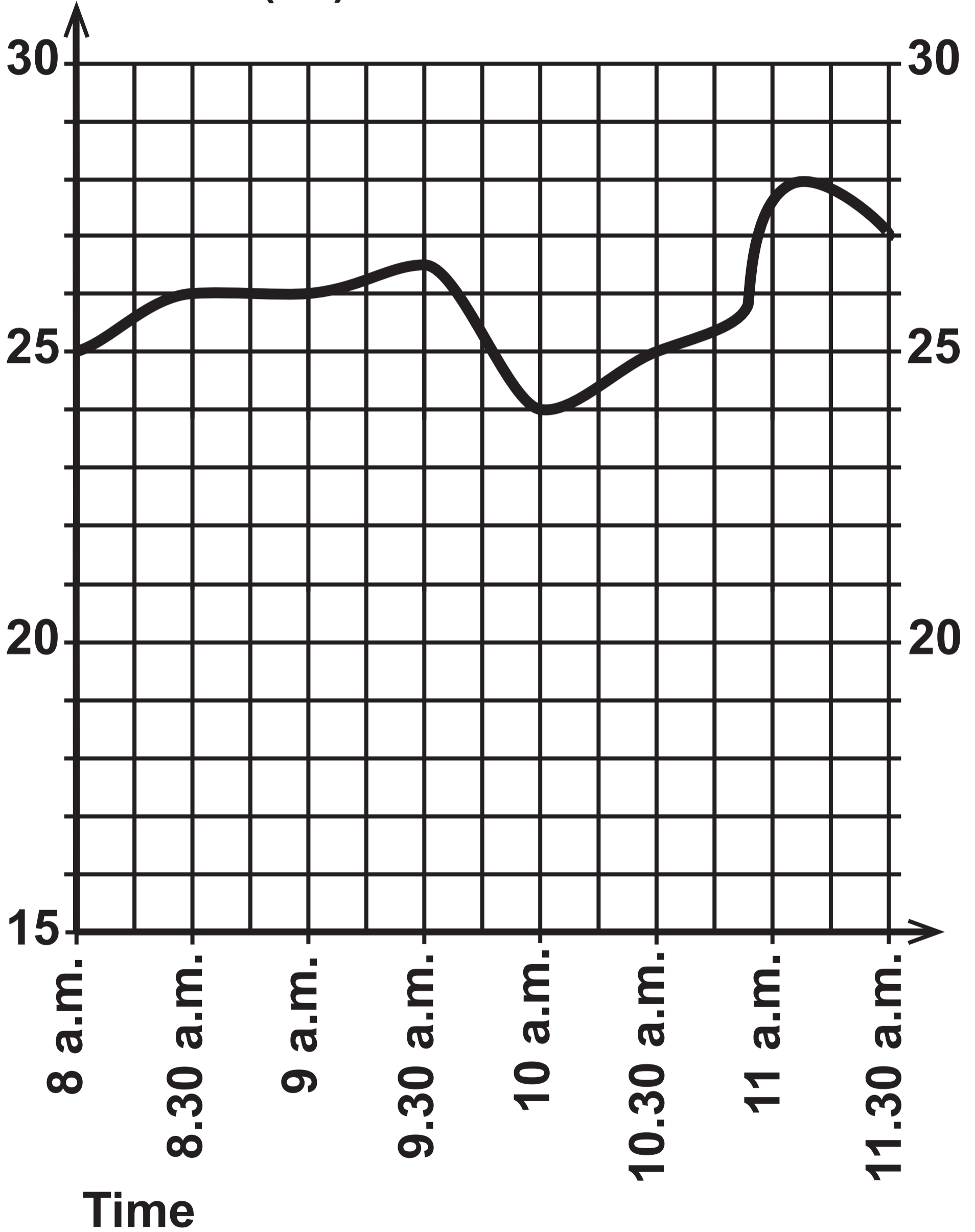
## Question 8 (a)

### Table

<b>CITY</b>	<b>TIME</b>	<b>DAY</b>
<b>St Asaph</b>	<b>12:30</b>	<b>Saturday</b>
<b>Montreal</b>	<b>07:30</b>	<b>Saturday</b>
<b>New Delhi</b>	<b>17:00</b>	<b>Saturday</b>
<b>Sydney</b>	<b>21:30</b>	<b>Saturday</b>

# Question 10 (b)

Temperature  
of the water ( $^{\circ}\text{C}$ )



**GCSE – NEW  
MATHEMATICS**



**and**

**NUMERACY**

**FORMULA LIST  
FOUNDATION TIER  
GCSE**

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

