

Candidate Name	Centre Number					Candidate Number				
Mal@JustMaths						0				

SOLUTIONS



GCSE

MATHEMATICS - NUMERACY

UNIT 1: NON-CALCULATOR
FOUNDATION TIER

SPECIMEN PAPER SUMMER 2017

1 HOUR 30 MINUTES

ADDITIONAL MATERIALS

The use of a calculator is not permitted in this examination.
A ruler, protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

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 in this booklet.

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.

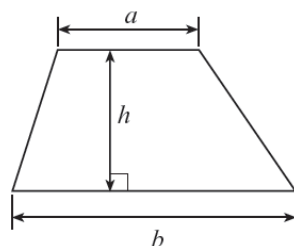
The number of marks is given in brackets at the end of each question or part-question.

The assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing in question 3(c).

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	7	
2.	7	
3.	13	
4.	7	
5.	4	
6.	5	
7.	4	
8.	4	
9.	9	
10.	5	
TOTAL	65	

Formula list

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



- (c) The table below shows the total number of medals Wales won (in all sports) in the 5 Commonwealth Games before 2014.

Year and venue	2010 Delhi	2006 Melbourne	2002 Manchester	1998 Kuala Lumpur	1994 Victoria
Number of medals	19	19	31	15	19

- (i) What is the median of the number of medals won by Wales during these 5 Commonwealth Games? *15, 19, 19, 19, 31* [1]
Circle your answer.

31

2002

16

19

Can't tell

- (ii) What is the range of the number of medals won by Wales over these 5 Commonwealth Games? *31-15* [1]
Circle your answer.

31

2002

16

19

Can't tell

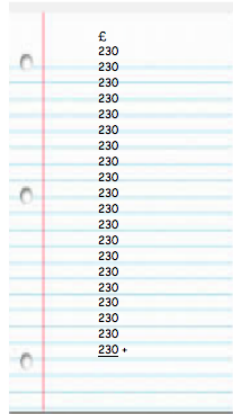
3. The *Hafod Hotel* has 20 bedrooms.

- (a) Andrew is the deputy manager.
He is calculating the cost of buying 20 new single beds.



Single bed £230

Andrew writes out a sum with £230 written 20 times.



Describe a better method that Andrew could use to calculate the cost of 20 beds at £230 each.

Work out the total cost of these 20 beds using your suggested method. [2]

Method:

he could use multiplication

$$230 \times 20 = 230 \times 10 \times 2 = 2300 \times 2 = 4600$$

Total cost of 20 beds = £ 4600

- (b) Iona is the hotel manager.
Iona says that 2 single beds are needed for each bedroom, so the hotel needs 40 new single beds not 20.

Describe the quickest way for Andrew to now work out the total cost of the 40 beds.

Write down the total cost of 40 beds. [2]

Method:

Multiply the answer by 2

$$4600 \times 2$$

Total cost of 40 beds = £ 9200

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

Iona is planning to buy new tables and chairs for the hotel dining room.



Table £150



Chair £49.50 \approx £50

Iona has a budget of £3100.

She decides to buy 10 tables and as many chairs as she can afford within her budget.

How many chairs could Iona afford to buy?

How much money would she have left from her budget?

You must show all your working.

[9]

$$10 \text{ tables} = £150 \times 10 = 1500$$

$$3100 - 1500 = £1600$$

$$10 \text{ chairs} = 50 \times 10 = 500 \quad 30 \text{ chairs} = £1500$$

$$+ 2 \text{ chairs} = £100 = £1600$$

$$(32 \times 50 = £1600)$$

She could buy 32 chairs and have £16 left.

4. (a) The *Hafod Hotel* has a small swimming pool for the use of guests. The pool has 4 vertical sides and a rectangular horizontal floor.

The width of the floor of the pool is 10 metres and the length is 20 metres.

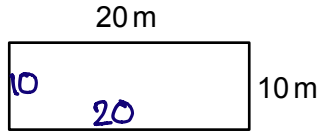


Diagram not drawn to scale

- (i) Sealant is to be applied around the perimeter of the floor of the swimming pool. What is the perimeter of the floor of the swimming pool? Circle your answer.

[1]

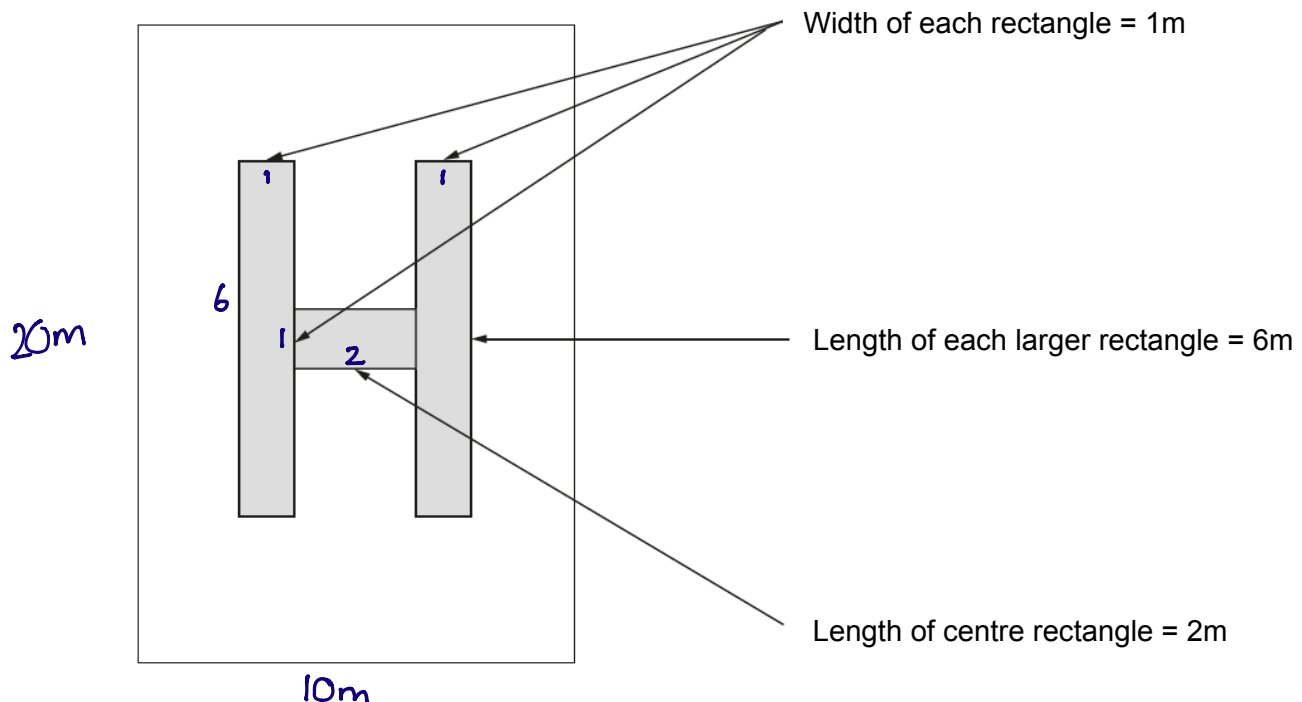
30 metres 200 metres 60 metres 3000 cm 50 metres

- (ii) The floor of the swimming pool is to be painted with a waterproof coating. Calculate the area of the floor of the swimming pool.

[2]

$20 \times 10 = 200 \text{ m}^2$

- (b) The hotel would like to make the letter H using tiles in the centre of the floor of the swimming pool.



A plan is shown below.

Complete the plan by inserting all the missing measurements.

[4]

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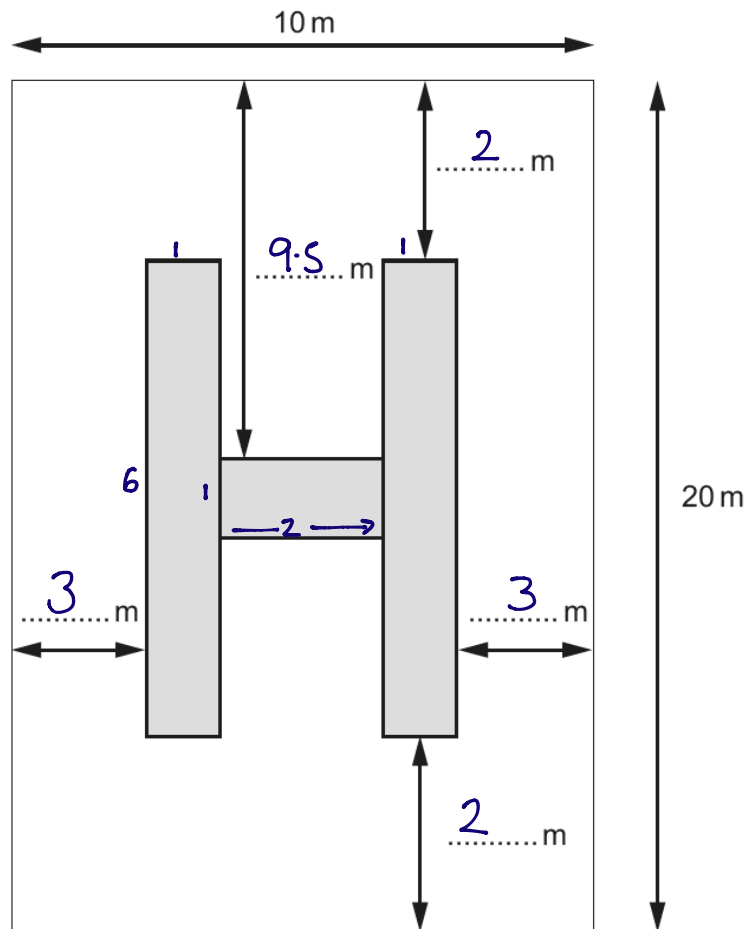


Diagram not drawn to scale

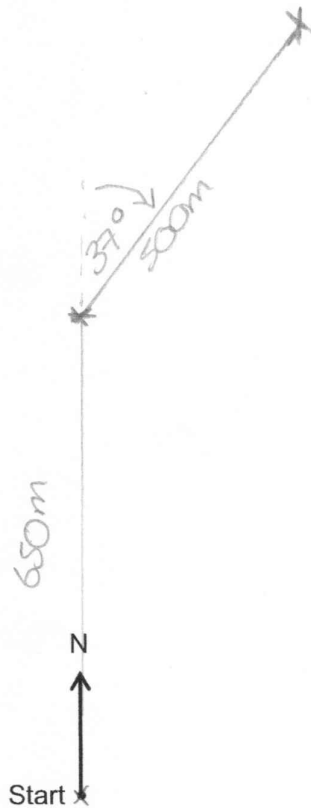
1. Martina walks **650 metres due North**. *6.5cm*

She then turns **right through an angle of 37°** and then walks a further **500 metres in a straight line**.

Using a scale of **1cm to represent 100 m**, draw an accurate scale drawing to show the above information.

The starting point is given.

Use your completed drawing to find the actual distance Martina is away from her starting point. [4]



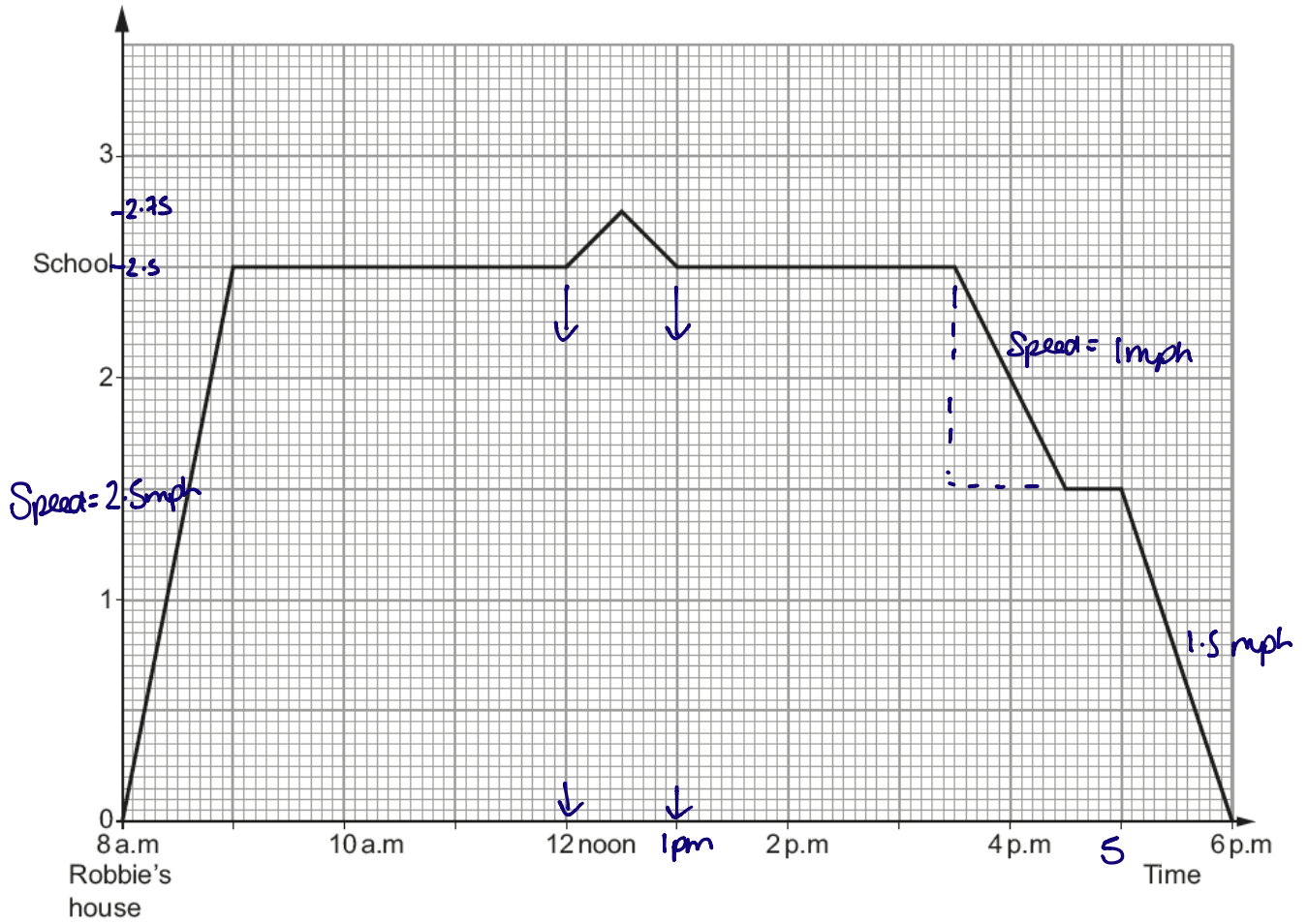
$11\text{cm} = 1100\text{m}$

Actual distance from the starting point = 1100m

$1\text{cm} = 100\text{m}$

6. The travel graph below illustrates Robbie's journey to and from school one day.

Distance from Robbie's house (miles)



(a) (i) At what time did Robbie arrive at school?
Circle your answer. [1]

8:00 a.m. 8:30 a.m. 3:30 p.m. 8:50 a.m. 9:00 a.m.

(ii) At what time was Robbie furthest away from his house?
Circle your answer. [1]

12:15 p.m. 6 p.m. 12:30 p.m. 3:30 p.m. 12 noon

- (iii) Which one of the following statements is correct?
Circle your answer. [1]

- A** Robbie's average speed was greater between 8 a.m. and 9 a.m. than it was between 5 p.m. and 6 p.m.
- B** Robbie's average speed was the same between 8 a.m. and 9 a.m. as it was between 5 p.m. and 6 p.m.
- C** Robbie's average speed was less between 8 a.m. and 9 a.m. than it was between 5 p.m. and 6 p.m.
- D** It is not possible to tell anything about Robbie's average speed between 8 a.m. and 9 a.m. or between 5 p.m. and 6 p.m. from the information given.

- (b) The travel graph shown is correct.
Robbie is 11 years old and tells his teacher,

'I walked to school, but actually had to run fast for the last 15 minutes to get there on time.'

'I didn't leave the school classroom all day'.

For each of Robbie's statements, decide whether he was telling the truth or not.

You must give a reason for each of your answers below:

- (i) 'I walked to school but I ran for the last 15 minutes.'

Is this true? Put a tick in the box: Yes No [1]
Reason:

.....no it was a constant speed between 8 and 9am.....

.....
.....

- (ii) 'I stayed in the classroom all day.'

Is this true? Put a tick in the box: Yes No [1]
Reason:

.....No between 12 and 1 there was a further distance away from home.....

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7. Sam and Laura own $\frac{3}{4}$ of the company *Dragon CarCare*.



They each own $\frac{1}{2}$ of this $\frac{3}{4}$ share.

It cost a total of £8000 to set up the original business.

This set-up cost was paid in proportion to the share each person has in the business. After 6 months, Laura received £3200 as her share of the profits so far.

Did Laura make a profit on her original investment or did she make a loss?

You must show all your working and state how much profit or loss Laura made.

[4]

$$\frac{1}{2} \text{ of } \frac{3}{4} = \frac{1}{2} \times \frac{3}{4} = \frac{3}{8} \text{ \& they each own } \frac{3}{8}$$

$$\text{Laura's setup cost} = \frac{3}{8} \text{ of } 8000 = \frac{3 \times 8000}{8} = \frac{24000}{8} = \text{£}3000$$

She received £3200

Laura made a profit of £200

8. Hari lives in Chester.
 ✓ He wanted to catch the ferry to Ireland, leaving Holyhead at 12:05 p.m.
 ✓ Passengers must board the ferry at least 30 minutes before sailing time.

In planning his journey, he allowed himself 20 minutes to travel from the station at Holyhead to the ferry.

He wanted to catch the latest possible train from Chester to be sure of arriving on board the ferry in time.

Part of the train timetable he used is shown below.

Chester (depart)	07:19	08:55	09:58	10:24
Holyhead (arrival)	09:22	10:35	11:22	12:23

Hari caught the train he wanted, and the train arrived at Holyhead station on time. The time to travel from the station to the ferry took a total of 25 minutes.

Calculate the total time taken between Hari departing from Chester and arriving at the ferry. [4]

needs to get to the ferry at 30 mins before 12:05 => 11:35 am

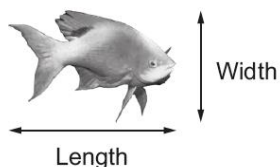
25 mins from station to ferry => 11:10 a.m. (can't be 09:58)

so catches 08:55 train 08:55 -> 10:35 = 1 hr 40 mins
 + 25 mins walk. = 2 hr 5 mins

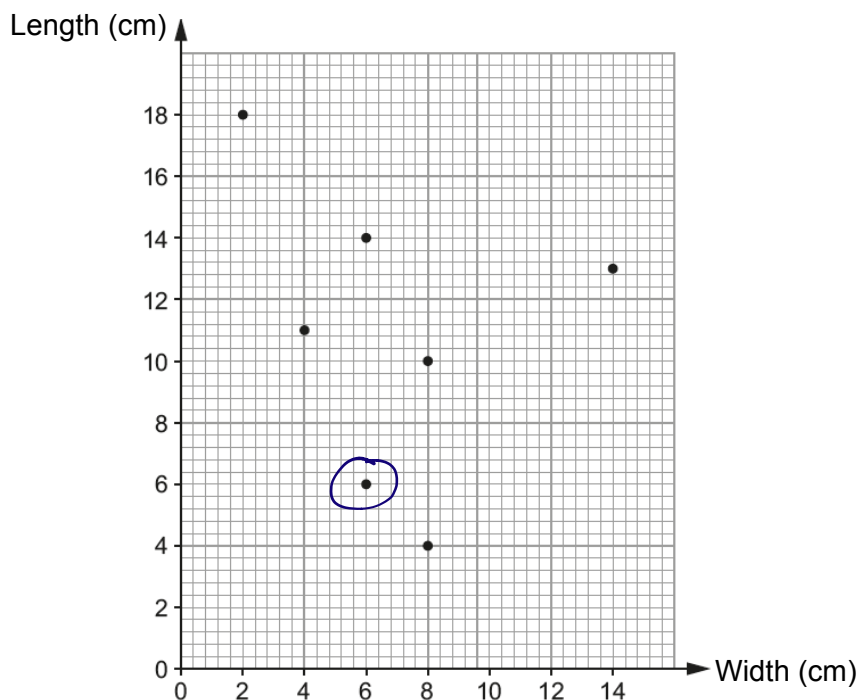
Time taken = 2 hrs 5 mins

9. Nerys takes her 3 cousins, Ben, Elwyn and Denny, to an aquarium in North Wales.

(a) Denny records estimates for the length and width of some of the fish he sees at the aquarium.



He draws a scatter diagram as shown below.



(i) One of the fish is 4 cm wide.
Write down its length. [1]

..... 11 cm

(ii) Another fish is 14 cm long.
Write down its width. [1]

..... 13 cm

(iii) The width of a yellow fish is exactly the same as its length.
Indicate on the scatter diagram which point you think represents the yellow fish. [1]

(b)

Remember:
 14 pounds = 1 stone
 1 kg \approx 2.2 pounds



Nerys sees a very big fish.

She is told it weighs 15 kg.

Nerys herself weighs 9 stone 4 pounds.

Complete the following sentence.

[6]

Nerys weighs approximately⁴..... times as much as the fish.

Nerys 9 stone 4 pounds

$$9 \text{ stone} = 9 \times 14 = 126$$

$$+ 4 = 130 \text{ pounds}$$

$$\begin{array}{r} 14 \\ \times 9 \\ \hline 126 \end{array}$$

$$\text{Fish } 15 \text{ kg} = 15 \times 2.2 = 33 \text{ pounds}$$

$$1 \text{ fish} = 33$$

$$2 = 66$$

$$3 = 99$$

$$4 = 132$$

10. 200 visitors to Cardiff completed a questionnaire.

All 200 visitors had visited at least one of the following attractions: Cardiff Castle, the Millennium Stadium and Cardiff Bay.

25 of the visitors had visited Cardiff Castle and the Millennium Stadium and, of these, 15 had visited all three attractions.

91 of the visitors had visited the Millennium Stadium.

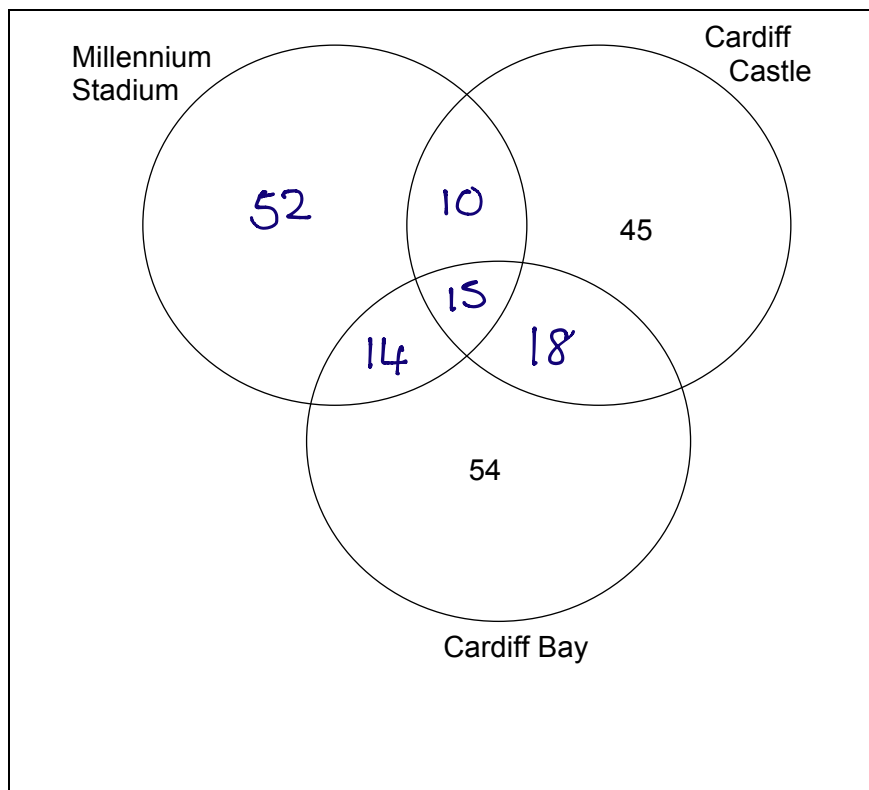
88 had visited Cardiff Castle.

101 had visited Cardiff Bay.

Some further information is given on the Venn diagram below.

How many visitors had visited the Millennium Stadium but not Cardiff Castle or Cardiff Bay?

[5]



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.....

.....

.....52..... visitors had visited the Millennium Stadium but not Cardiff Castle or Cardiff Bay.

5. Martina walks **650 metres due North**.

She then turns **right through an angle of 37°** and then walks a further **500 metres in a straight line**.

Using a scale of **1cm to represent 100 m**, draw an accurate scale drawing to show the above information.

The starting point is given.

Use your completed drawing to find the actual distance Martina is away from her starting point.

[4]



Actual distance from the starting point =