Centre Number						Candidate Number				
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Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
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16 – 17	
TOTAL	

AQA

General Certificate of Secondary Education
Higher Tier
November 2014

Mathematics 43601H

Unit 1

H

Monday 10 November 2014 9.00 am to 10.00 am

For this paper you must have:
- a calculator
- mathematical instruments.

Time allowed
- 1 hour

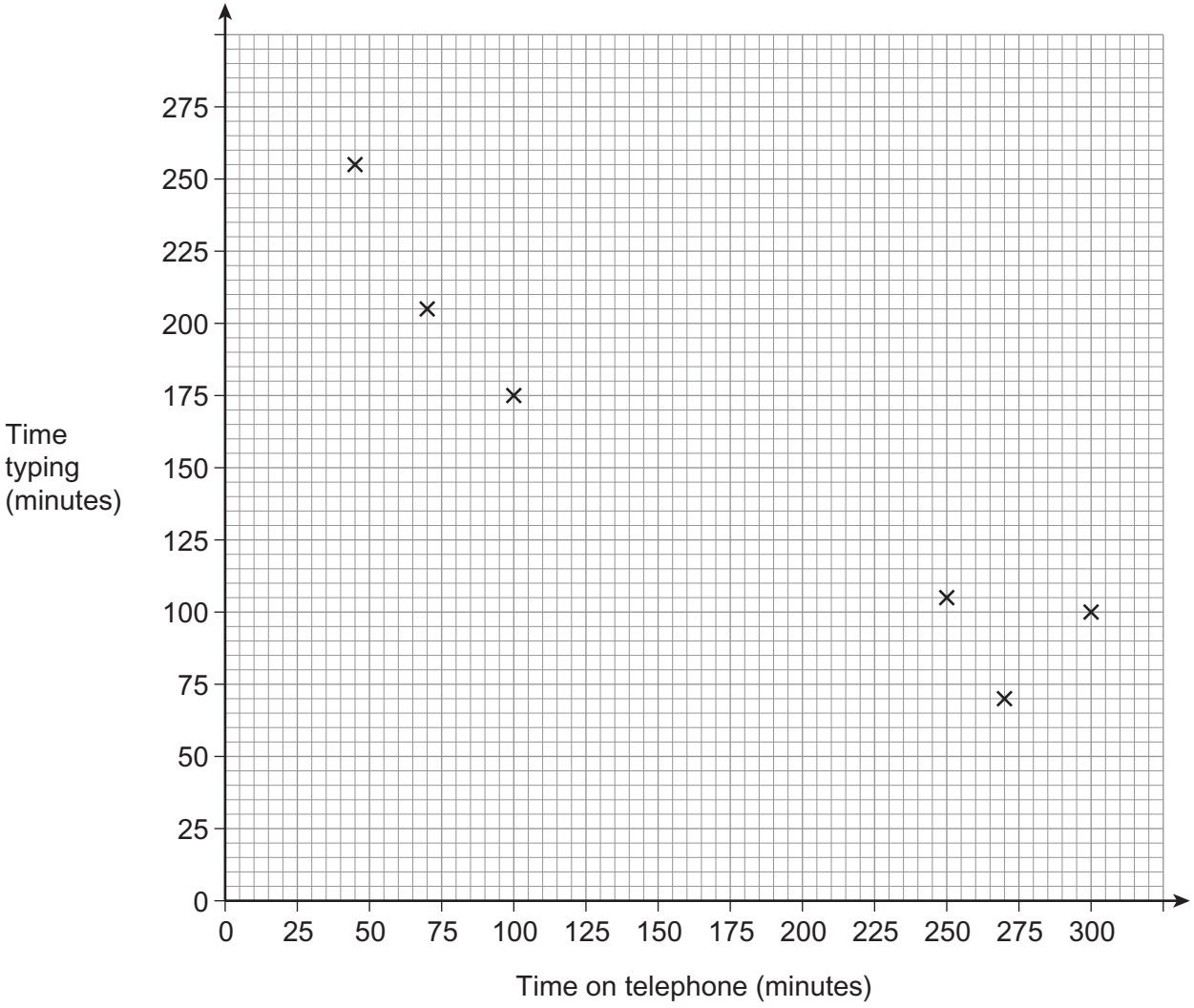
Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 54.
- The quality of your written communication is specifically assessed in Questions 9 and 11. These questions are indicated with an asterisk (*).
- You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

Advice
- In all calculations, show clearly how you work out your answer.

Answer **all** questions in the spaces provided.

1 A secretary types letters and answers the telephone.
The times spent on six days are shown on the scatter graph.



1 (a) The table shows the times spent on the next four days.

Time on telephone (minutes)	275	150	125	180
Time typing (minutes)	125	190	225	175

Show these times on the scatter graph.

[2 marks]

1 (b) Draw a line of best fit.

[1 mark]

1 (c) On another day she spent 200 minutes on the telephone.

Use your line of best fit to estimate the time she spent typing that day.

[1 mark]

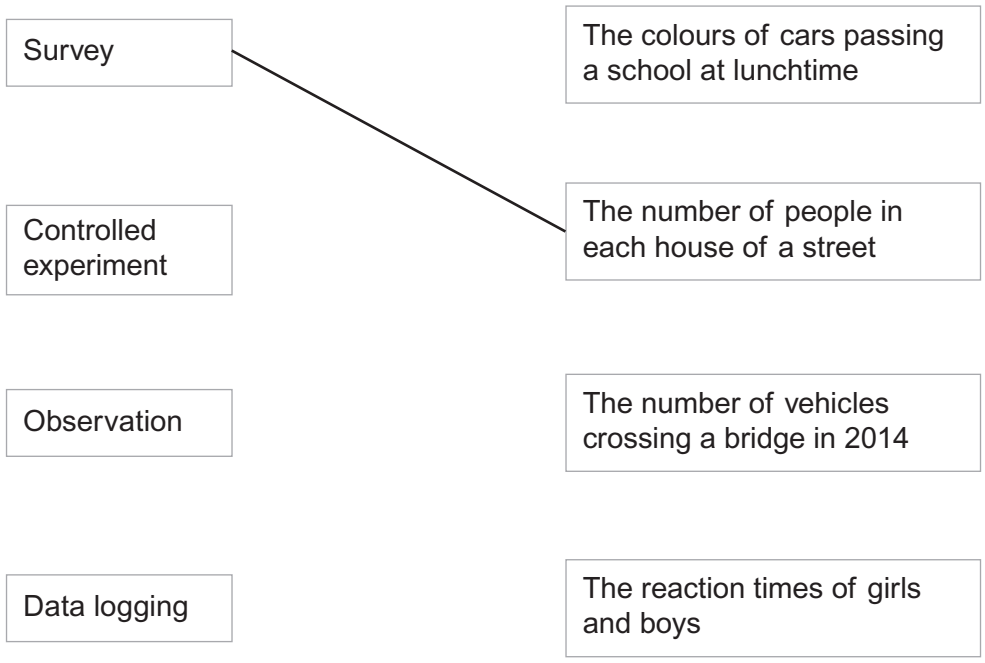
Answer ..... minutes

Turn over for the next question

4

2 (a) Match each data collection method to **one** set of data.

[2 marks]



2 (b) Jess wants to know the number of people who live in her street.
She carries out a survey.

Which **two** words describe the data she collects?
Circle your answers.

[2 marks]

Primary Secondary Discrete Continuous

3 In a game a team scores

2 points for a win
1 point for a draw
0 points for a loss.

A team plays four games.

There are six combinations of results that score **at least 5** points.

Complete the table to show these combinations.

[3 marks]

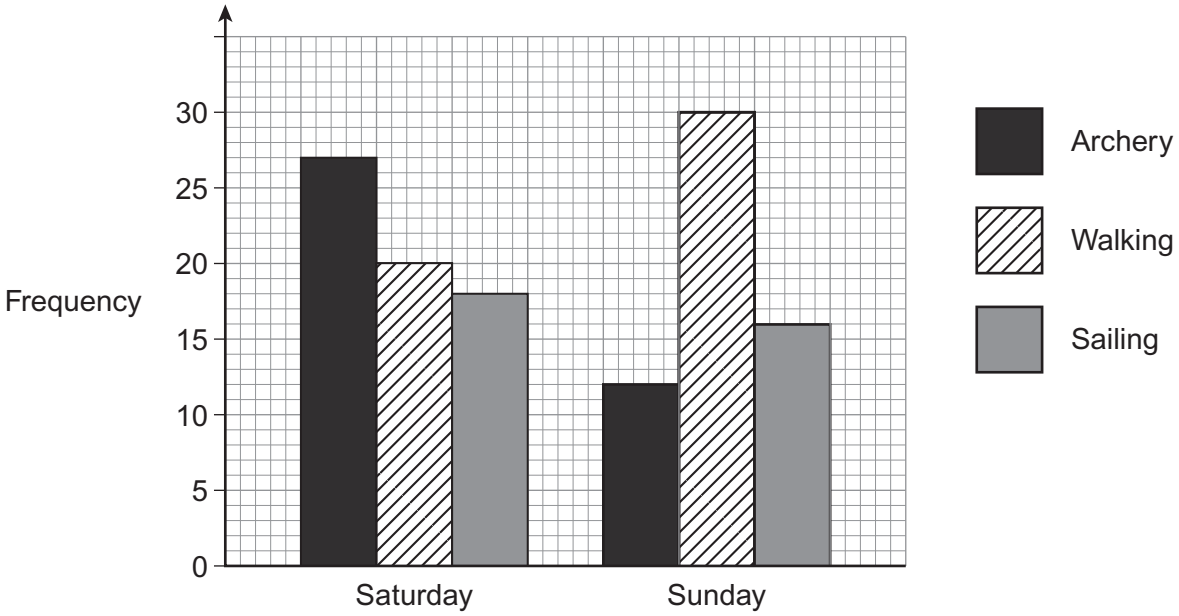
Number of wins	Number of draws	Number of losses	Total score
4	0	0	8
3	1	0	7

Turn over for the next question

7

4 An outdoor centre has activities for children.

Number of children choosing each activity



4 (a) Adults help with **walking** in the ratio

number of adults : number of children = 1 : 5

3 adults can help with walking on **Saturday**.

Is this enough?
You **must** show your working.

[2 marks]

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4 (b) A group of people go **sailing** in the ratio

number of adults : number of children = 1 : 2

What fraction of the group are adults?

[1 mark]

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Answer .....

4 (c) On **Sunday** all the children do the activity they choose.

The ratios for each activity are shown in the table.

Activity	**Number of adults : number of children**
Archery	1 : 3
Walking	1 : 5
Sailing	1 : 2

Work out the total number of adults needed for Sunday.

[3 marks]

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Answer .....

6

5 The normal price of a television is £1200
It is reduced to £970

Work out the percentage reduction.
Give your answer to 1 decimal place.

[3 marks]

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Answer ..... %

6 Four numbers have a mean of 10
The median is 8

Two of the numbers are 1 and 5

Work out the other two numbers.

[3 marks]

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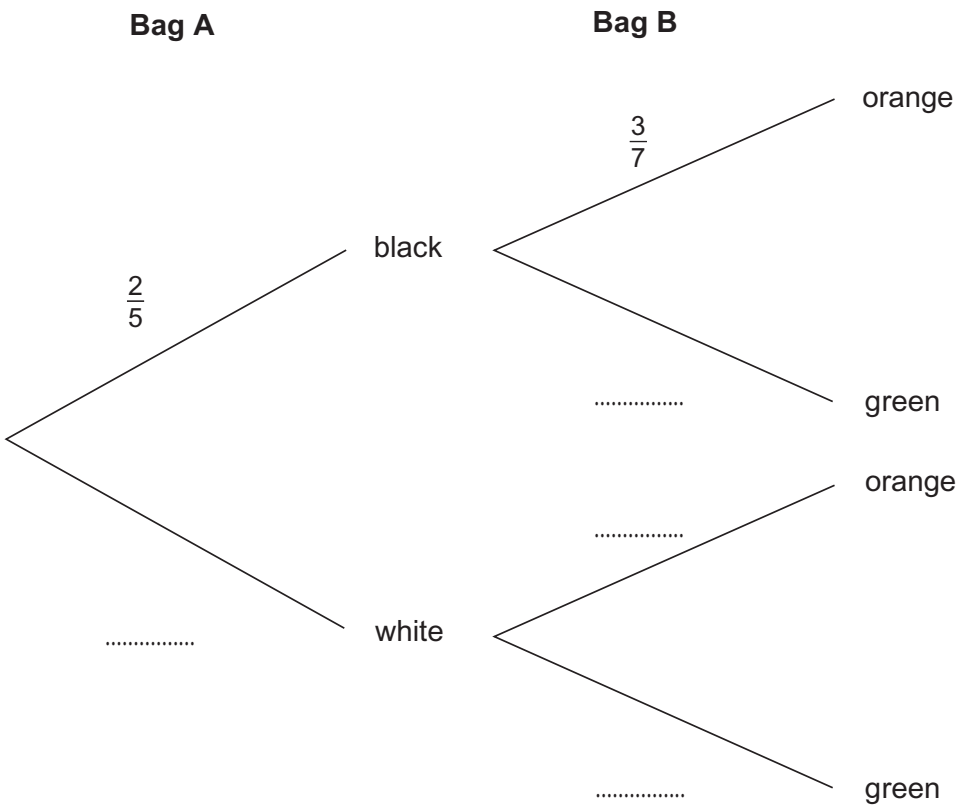
Answer ..... and .....

7 Bag A has 2 black counters and 3 white counters.
Bag B has 3 orange counters and 4 green counters.

A counter is chosen at random from each bag.

7 (a) Complete the tree diagram.

[2 marks]



7 (b) What is the probability of choosing a black counter and an orange counter?

[2 marks]

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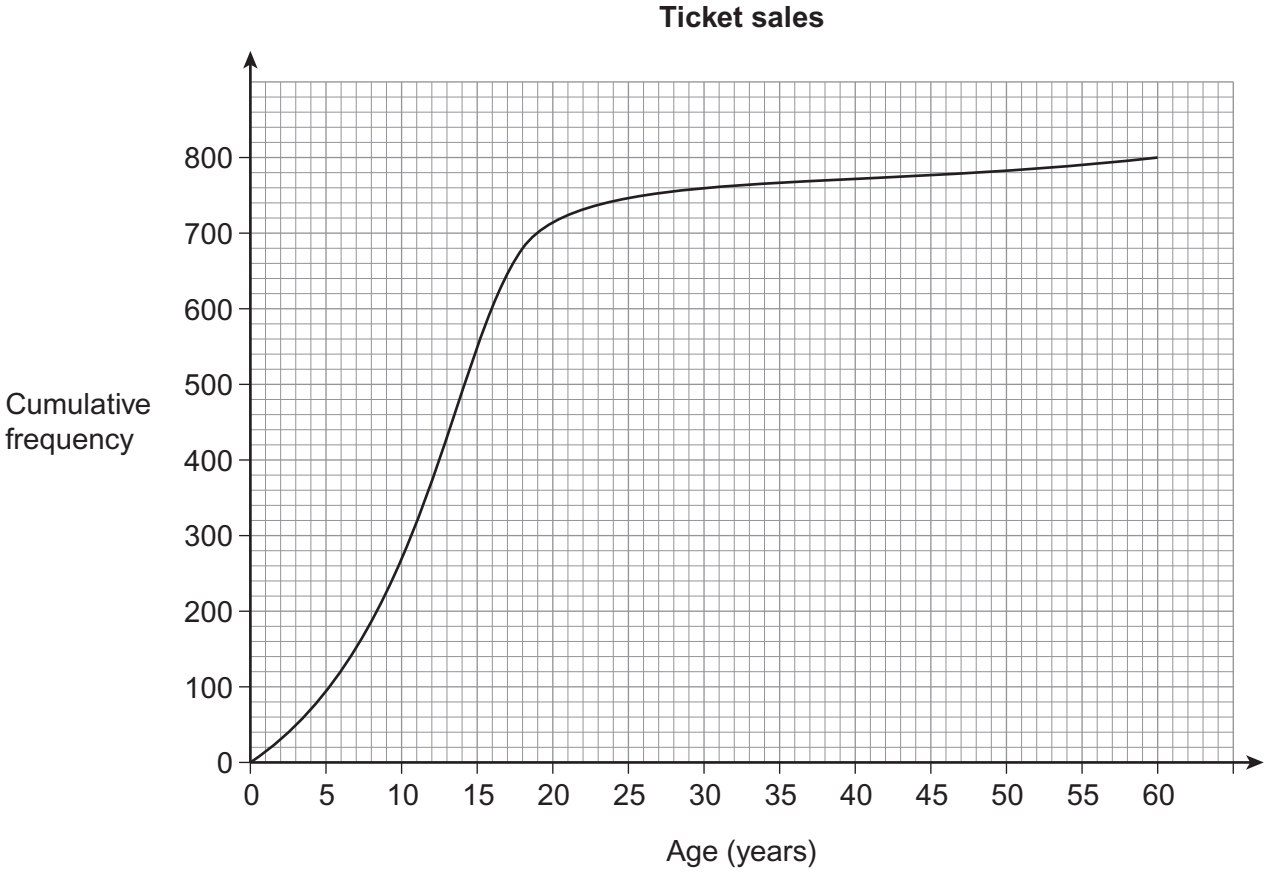
Answer .....

10

8 The table and graph show information about ticket sales.

Type of ticket	Cost
Adult (18 years and over)	£23.00
Child	£19.60



How much did the 800 tickets cost altogether?

[3 marks]

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Answer £ .....

Turn over for the next question

3

9 Amy and Ben each played a game 15 times.
The stem-and-leaf diagram shows the points scored by Amy.

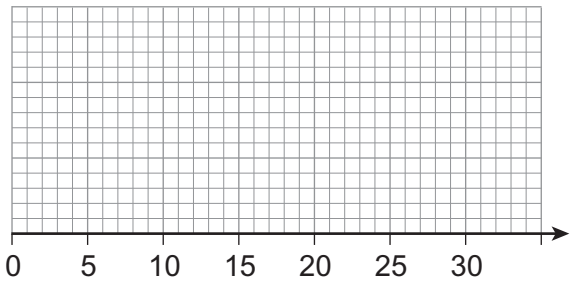
Key: 3 | 0 represents 30 points

0	9							
1	2	4	5	6	8	9		
2	1	3	3	5	7	8	8	
3	0							

***9 (a)** Draw a box plot to represent the data.

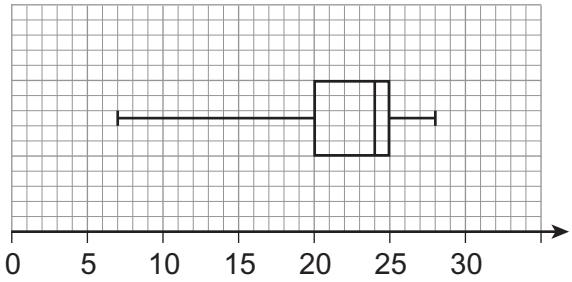
[4 marks]

Amy



This box plot represents the points scored by Ben.

Ben



9 (b) Ben says,

"On average I have better scores than Amy."

Is he correct?
Use the data to support your answer.

[1 mark]

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9 (c) Ben says,

"I have more consistent scores than Amy."

Is he correct?
Use the data to support your answer.

[2 marks]

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7

10 Here is some information about tourism in 2012

Country visited	Number of tourists	Total spent by tourists ($)
France	8.30×10^7	5.360×10^{10}
USA	6.70×10^7	1.262×10^{11}
Spain	5.77×10^7	5.590×10^{10}

21% of the total spent by tourists in the USA was by Canadians.
34% of tourists in the USA were Canadians.

Work out the average amount spent per Canadian tourist in the USA.

[3 marks]

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Answer $ .....

***11 (a)** What is a stratified sample?

[1 mark]

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11 (b) Here is some information about the age groups of people in a sports club.

Junior	Adult	Senior
35	220	45

A sample of size 60, stratified by age group, is taken.
Two people are chosen at random from the **sample**.

Work out the probability that they are both juniors.

[4 marks]

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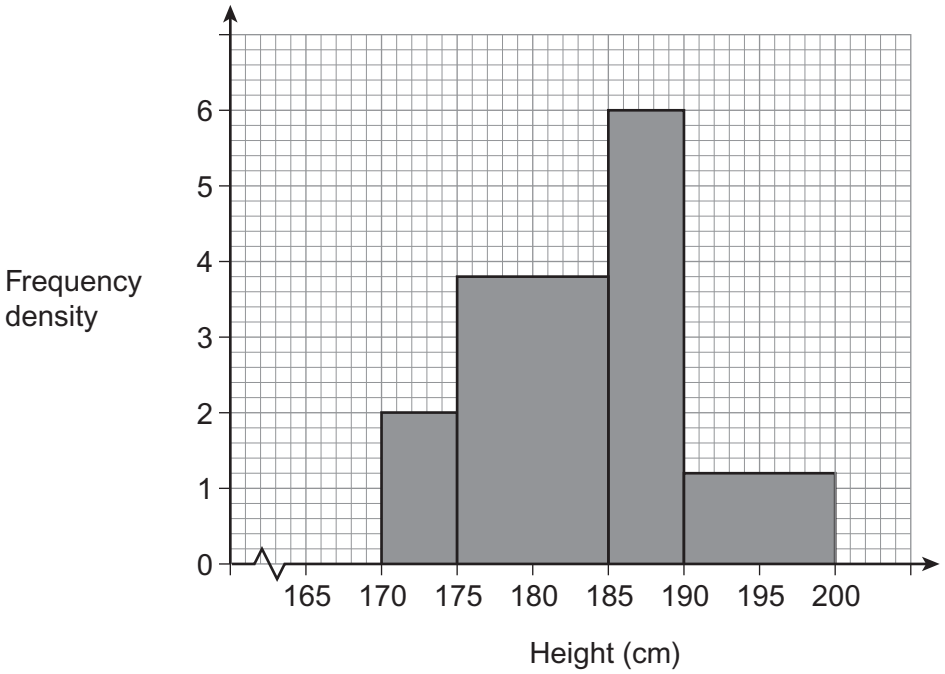
Answer .....

8

12 The histogram represents the heights of 90 firefighters.



12 (a) Which of the four bars represents the greatest number of firefighters?
You **must** show your working.

[3 marks]

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Answer ..... cm $\leqslant$ height $<$ ..... cm

12 (b) Calculate an estimate of the mean height.
You **must** show your working.

[4 marks]

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Answer ..... cm

12 (c) The tallest firefighter was 195.6 cm
The shortest firefighter was 170.4 cm

Both heights are given to 1 decimal place.

Work out the maximum possible difference in their heights.

[2 marks]

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Answer ..... cm

END OF QUESTIONS

9

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