Write your name here

Surname

Other names

Edexcel GCSE

Centre Number

Candidate Number

Mathematics B
Unit 1: Statistics and Probability (Calculator)

Foundation Tier

Wednesday 9 November 2011 – Afternoon
Time: 1 hour 15 minutes

Paper Reference
5MB1F/01

Total Marks

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need*.
- **Calculators may be used**.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is 60.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question*.
- Questions labelled with an **asterisk** (*****) are ones where the quality of your written communication will be assessed.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

Area of trapezium = $\frac{1}{2}(a + b)h$
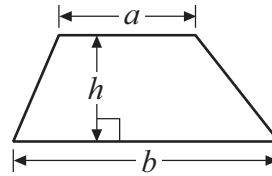
Volume of prism = area of cross section × length

P 4 0 1 1 8 A 0 2 2 0
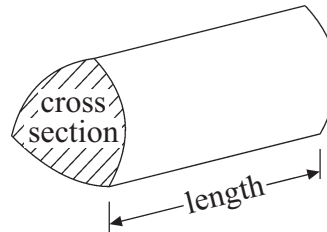
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1   Jay recorded the colour of each car going past his house one morning.
    The results are shown below.

blue	red	silver	silver	silver
red	silver	blue	silver	blue
silver	blue	red	red	silver
black	silver	red	black	red

(a) Complete the table for Jay's results.

Colour	Tally	Frequency
blue		
red		
silver		
black		

(2)

(b) Which colour of car did Jay record most often?

....

(1)

(Total for Question 1 is 3 marks)

2 The pictogram shows the number of laptops sold in a shop on Monday, on Tuesday and on Wednesday.
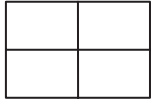
Monday	⊞ ⊞
Tuesday	⊟
Wednesday	⊞ ⊞ ⊡
Thursday	
Friday	

Key:

⊞

represents 8 laptops

(a) How many laptops were sold on Wednesday?

....
(1)

On Thursday 2 laptops were sold.
On Friday 24 laptops were sold.

(b) Show this information on the pictogram.

(2)

(Total for Question 2 is 3 marks)

3 Laura throws a fair coin once.

(a) On the probability scale below, mark with a cross (×) the probability that she gets a head.

```
|————————————————|————————————————|
0                 1                 1
                  —
                  2
```
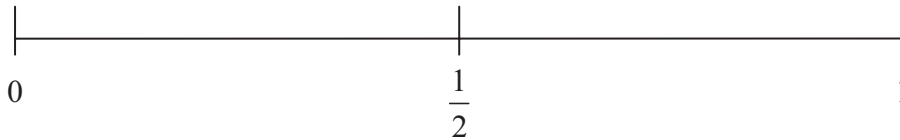
(1)

Ben rolls an ordinary dice once.

(b) On the probability scale below, mark with a cross (×) the probability that he rolls a number less than 8

```
|————————————————|————————————————|
0                 1                 1
                  —
                  2
```
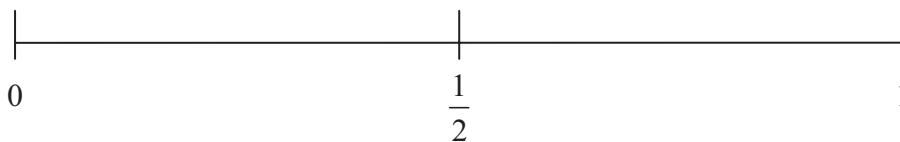
(1)

There are one orange sweet and three lemon sweets in a bag.
Rory takes at random one sweet from the bag.

(c) On the probability scale below, mark with a cross (×) the probability that he takes an orange sweet.

```
|————————————————|————————————————|
0                 1                 1
                  —
                  2
```

(1)
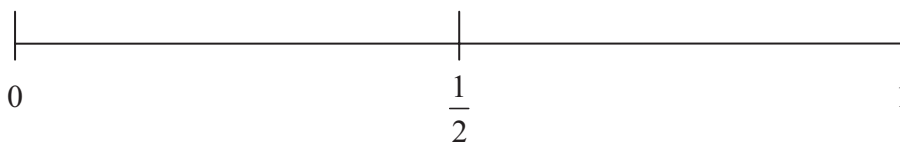
(Total for Question 3 is 3 marks)

4 George is reading a menu in a café.

Main course	Dessert
Steak	Ice cream
Pizza	Fruit
Chicken	Doughnut

He is going to choose one Main course and one Dessert.
One possible combination is Steak and Ice cream (S, I).

List all the possible combinations he can choose.
The first one is done for you.

(S, I) ....

....

....

(Total for Question 4 is 2 marks)

5 Andrew and Rachel recorded the total number of minutes they each spent sending text messages on Monday, on Tuesday, on Wednesday and on Thursday last week.

The dual bar chart shows this information.
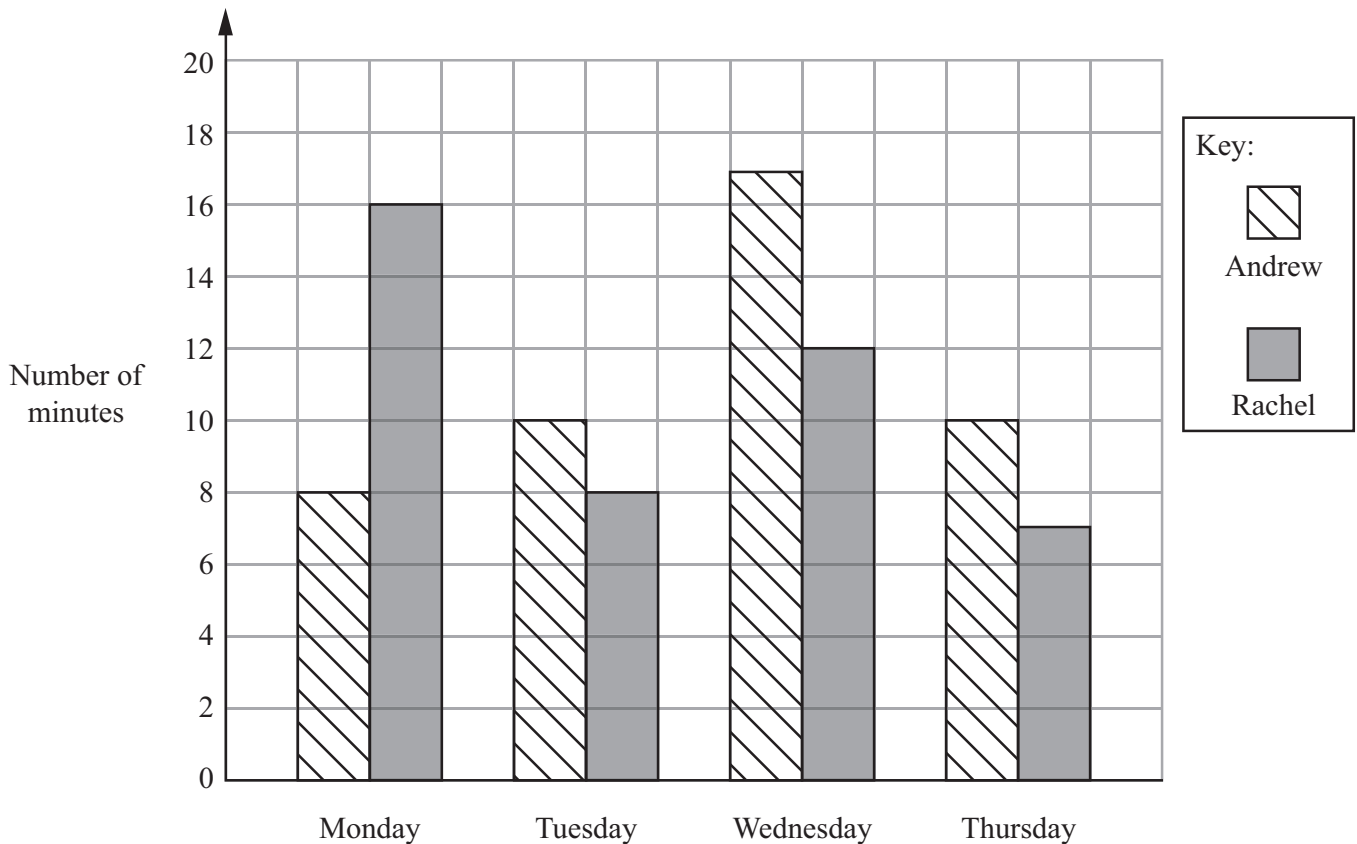
(a) How many minutes did Rachel spend sending text messages on Thursday?

.... minutes

(1)

On one day, Rachel spent 5 minutes less than Andrew sending text messages.

(b) Which day was this?

....

(1)

Andrew spent more minutes, in total, than Rachel in sending text messages on these four days.

(c) Work out how many more minutes.

.... minutes

(3)

(Total for Question 5 is 5 marks)

Turn over ▶

6 Emma lives in Manchester.
She is planning to travel from Manchester to Blackpool.

The timetable shows information about the times of the trains Emma can catch from Manchester.

Manchester to Blackpool

Manchester	08 00	09 15	10 30
Bolton	08 20	09 30	10 57
Preston	08 45	09 55	11 25
Blackpool	09 30	10 40	11 52

Emma is going to meet her friend in Blackpool at 11 am.

(a) What is the time of the latest train she can catch?

....
(1)

(b) Work out the least time one of these trains takes from Manchester to Blackpool.

.... minutes
(3)

Emma and her friend spend $\frac{3}{4}$ hour having lunch.

(c) Write $\frac{3}{4}$ hour in minutes.

.... minutes
(1)

(Total for Question 6 is 5 marks)

P40118A0820

7 The table shows information about some students' favourite sports.

	Football	Squash	Swimming	Tennis	Badminton
Boys	10	5	6	4	3
Girls	3	9	8	5	7

On the grid, draw a suitable diagram or chart for this information.
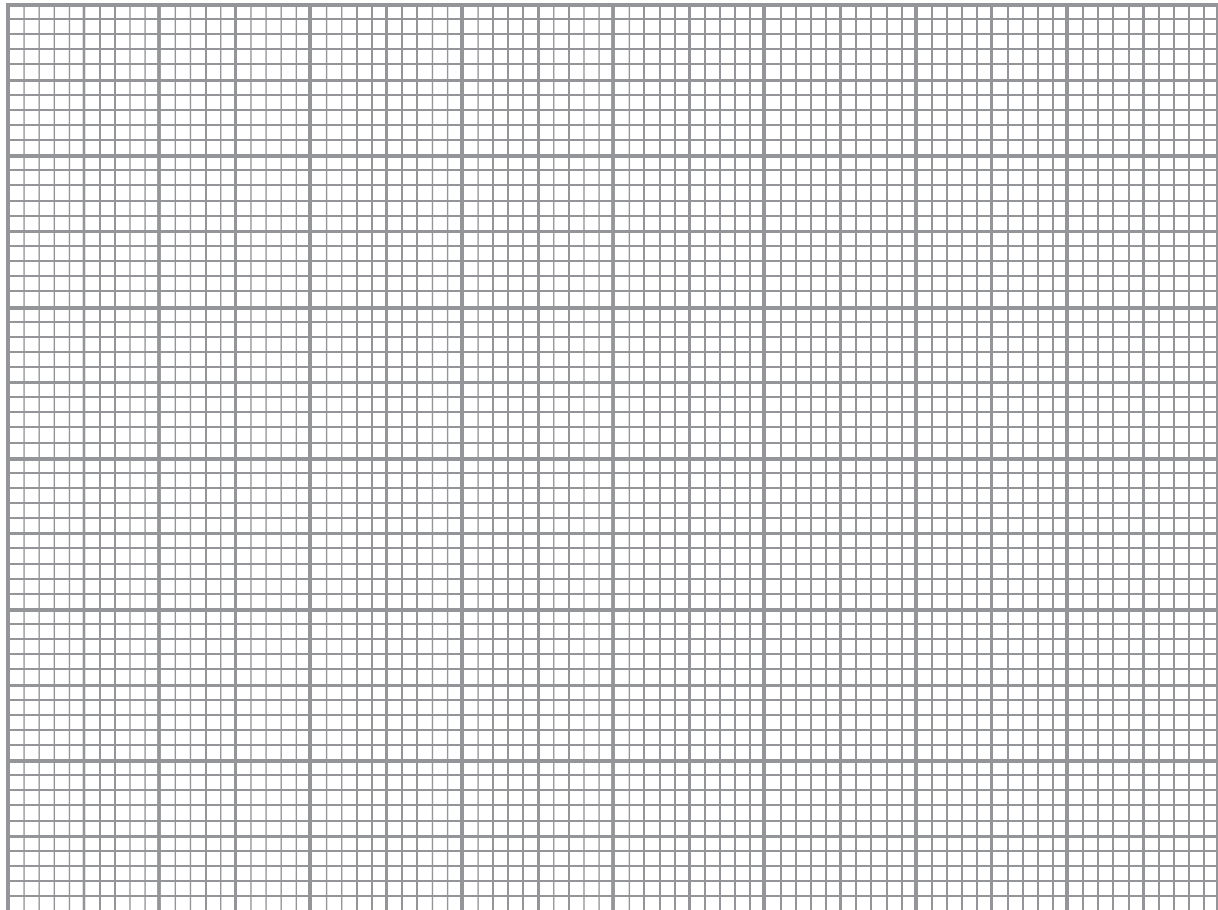
(Total for Question 7 is 4 marks)

8 The list shows the number of goals scored by Kevin's hockey team in each of 8 matches.

2   1   7   2   12   6   2   4

(a) Find the mode.

....
(1)

(b) Work out the range.

....
(2)

In the 9th match, Kevin's hockey team scored 5 goals.

(c) Work out the median number of goals scored in the 9 matches.

....
(2)

(Total for Question 8 is 5 marks)

9 Charlie wants to find out which type of transport people use to travel to an airport.

(a) Design a suitable table for a data collection sheet she could use to collect this information.

(3)

One afternoon Charlie stands by the road to the airport to collect her information.
This method of sampling will **not** give her reliable information.

(b) Write down one reason why.

....

....

....

....

(1)

(Total for Question 9 is 4 marks)

*10 Joanne and Guy are planning their summer holiday in Sunsville.
They are going to stay in a hotel.

The tables show the costs, in £, for adults and children at each of 3 hotels.

Hotel Bona Vista

	May			June		
Date	1-10	11-20	21-31	1-10	11-20	21-30
Adult	500	525	575	600	625	650
Child 5-15	200	250	300	325	350	375
Child under 5	100	125	150	175	200	225

Hotel Supersol

	May			June		
Date	1-10	11-20	21-31	1-10	11-20	21-30
Adult	620	650	675	700	725	750
Child 5-15	160	200	250	250	275	300
Child under 5	100	100	150	150	150	175

Hotel Sunswift

	May			June		
Date	1-10	11-20	21-31	1-10	11-20	21-30
Adult	620	620	620	630	640	650
Child under 16	150	150	150	160	170	180

Joanne and Guy have two children aged 2 and 6
They want to go on holiday from 11-20 June.

Which is the cheapest hotel for them?
You must show all your working.

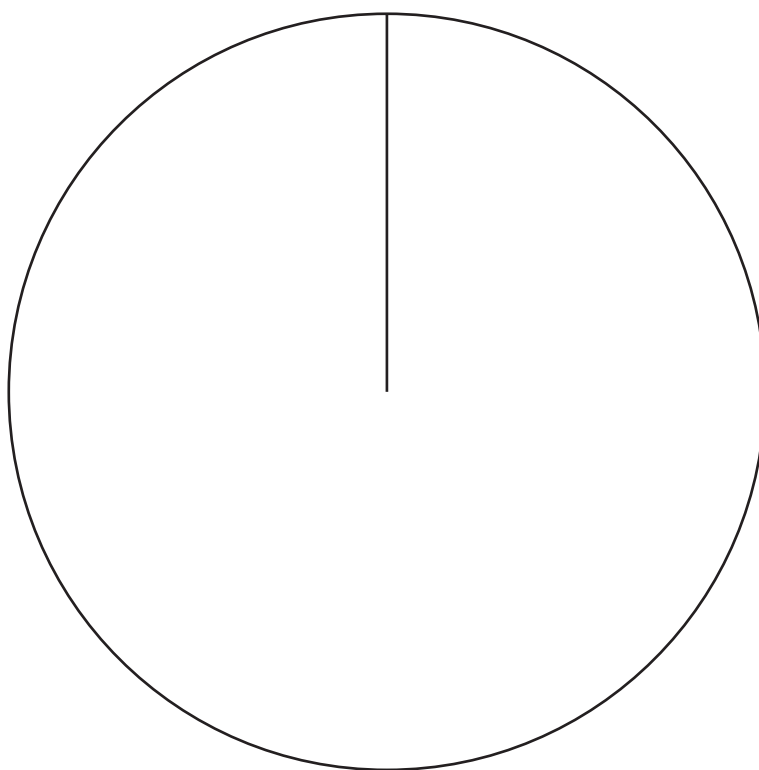**(Total for Question 10 is 5 marks)**

11 A group of Year 10 students was asked to choose a new subject to study.

The table shows information about the choices.

Subject	Number of students	
construction	40	
hairdressing	56	
tourism	24	

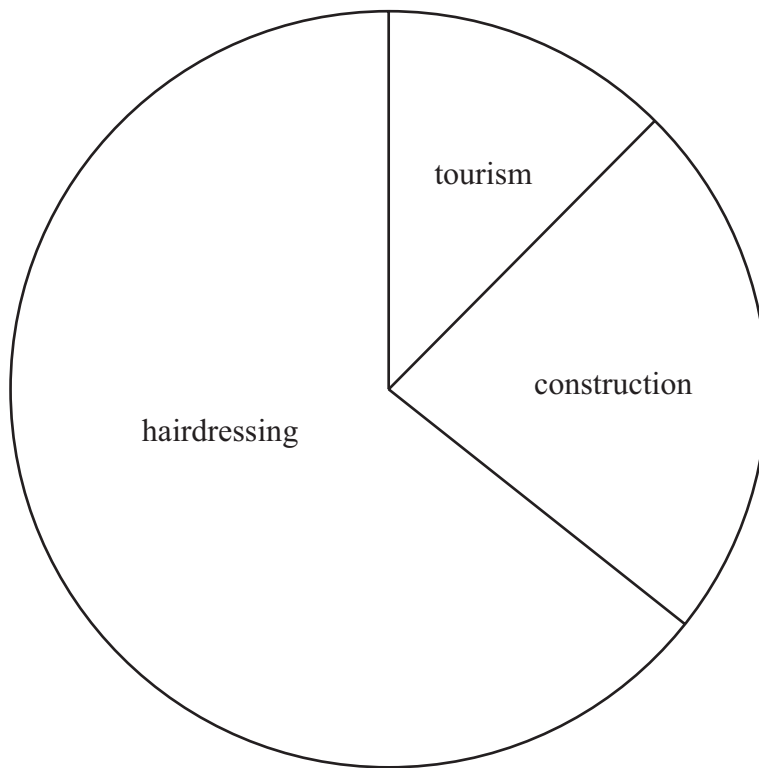(a) Draw an accurate pie chart to show this information.

(3)

A group of Year 11 students was also asked to choose a new subject to study.

This pie chart shows information about their choices.

Danny says

"The pie charts show that hairdressing was chosen by more Year 11 students than by Year 10 students."

(b) Is Danny correct? ....

You must explain your answer.

....

....

....

....

(1)

(Total for Question 11 is 4 marks)

12 There are yellow discs, red discs, blue discs and green discs in a bag.
Dinesh is going to take at random a disc from the bag.

The table shows each of the probabilities that Dinesh will take a red disc, or a blue disc, or a green disc.

Colour	yellow	red	blue	green
Probability		0.40	0.25	0.15

(a) Work out the probability that he will take a yellow disc.

....

(2)

Dinesh takes at random a disc from the bag.
He writes down the colour of the disc.
He puts the disc back into the bag.

He will do this 60 times.

(b) Work out an estimate for the number of times he takes a red disc from the bag.

....

(2)

(Total for Question 12 is 4 marks)

13 James wants to find out how long his friends spend using the internet.

He uses this question on his questionnaire.

How many hours do you spend using the internet?

☐   ☐   ☐

1 – 5   5 – 10   10 – 20

(a) Write down two things wrong with this question.

1 ....

....

2 ....

....
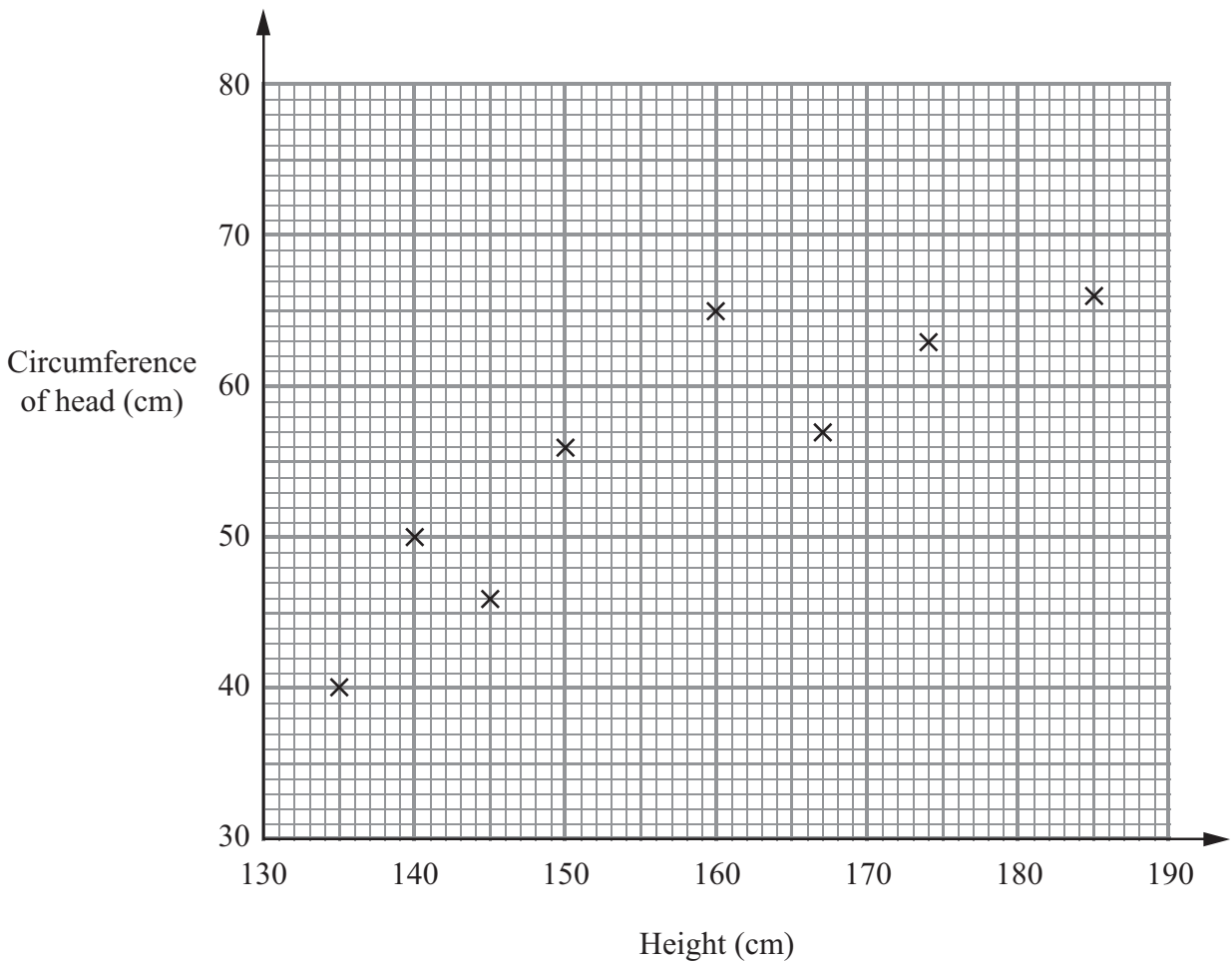
(2)

(b) Write a better question for James to use on his questionnaire to find out how long his friends spend using the internet.

(2)

(Total for Question 13 is 4 marks)

14 The scatter graph shows information about 8 people.
It shows each person's height and the circumference of their head.

The table gives this information for 2 other people.

Height (cm)	180	170
Circumference of head (cm)	72	65

(a) On the scatter graph, plot the information from the table.

(1)

(b) Describe the correlation.

....

(1)

(c) Draw a line of best fit on your scatter graph.

(1)

(d) Estimate the circumference of the head of a person who is 156 cm tall.

.... cm

(1)

(Total for Question 14 is 4 marks)

15 A pile of sand has a weight of 60 kg.
The sand is put into a small bag, a medium bag and a large bag in the ratio 2 : 3 : 7

Work out the weight of sand in each bag.

small bag .... kg

medium bag .... kg

large bag .... kg

(Total for Question 15 is 3 marks)

16 Julie is x years old.
Kevin is $x + 3$ years old.
Omar is $2x$ years old.

Write an expression, in terms of x, for the mean of their ages.

....

(Total for Question 16 is 2 marks)

TOTAL FOR PAPER IS 60 MARKS

BLANK PAGE