Write your name here

Surname	Other names

In the style of:

Edexcel GCSE

Centre Number

Candidate Number

Mathematics A

Scattergraphs

Higher Tier

Past Paper Style Questions
Arranged by Topic

Paper Reference

1MA0/2H

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

Total Marks

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.**

Information

- The total mark for this paper is 100
- 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 ▶

**1. (a)** Andy, Lauren and Noah are playing with a normal fair dice. They each predict the next seven throws.

Andy	1	2	1	2	1	2	1
Lauren	3	5	2	2	4	6	1
Noah	4	4	4	4	4	4	4

Which, if any, of these predictions is the most likely? Circle your choice and explain your answer.

Andy   Lauren   Noah   All are equally likely

(2)

(b) Nikki makes a six-sided dice.
To test the dice she throws it 100 times.
After each 10 throws she records the number of sixes thrown.
The relative frequencies for the first 90 throws are shown on the graph.

Relative frequency of a six — Total number of throws
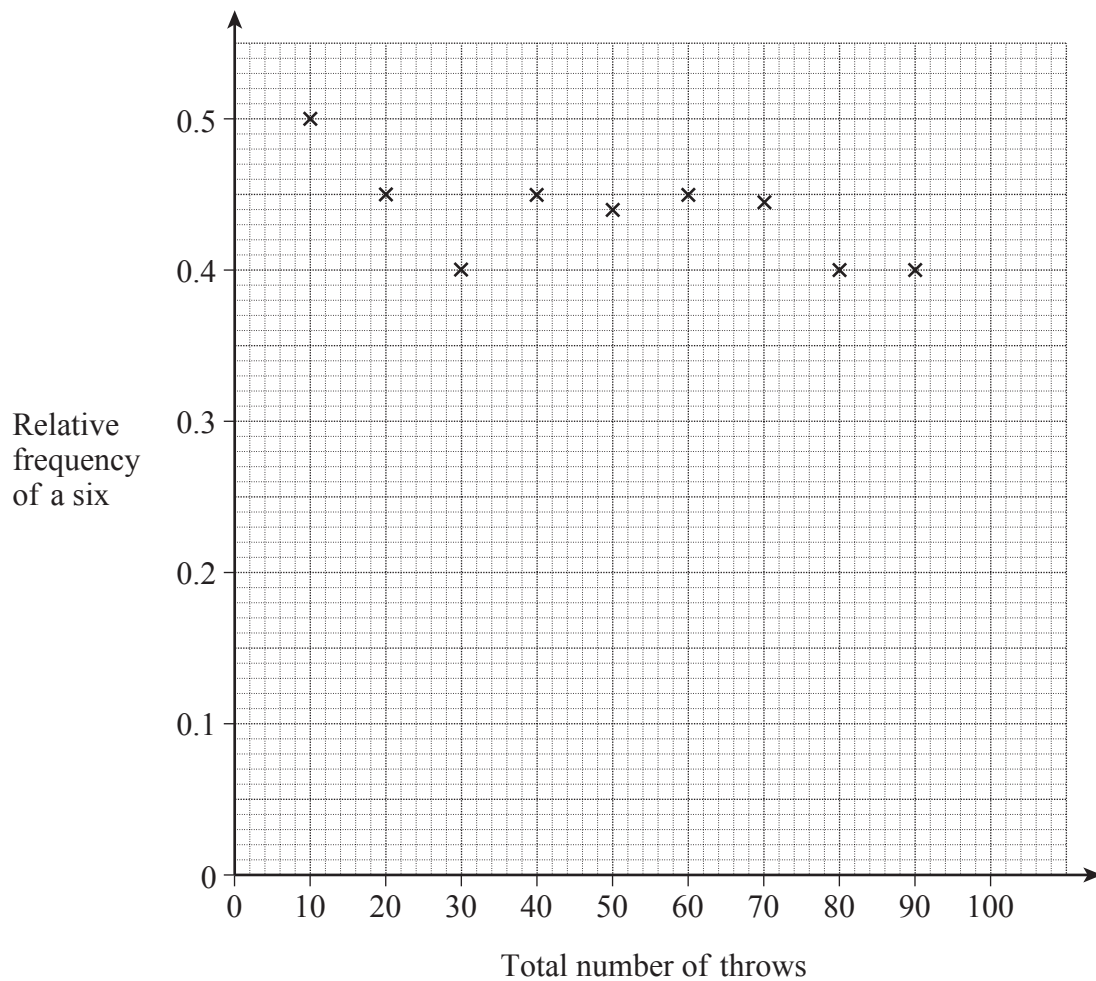
(b) (i) How many sixes were there in the first 10 throws?

(1)

(ii) After 100 throws there were 42 sixes.

Calculate and plot the relative frequency of a six after 100 throws.

(1)

(iii) How many sixes would you expect to get after 100 throws of a **fair** dice?

....

(1)

(iv) Is Nikki's dice fair?
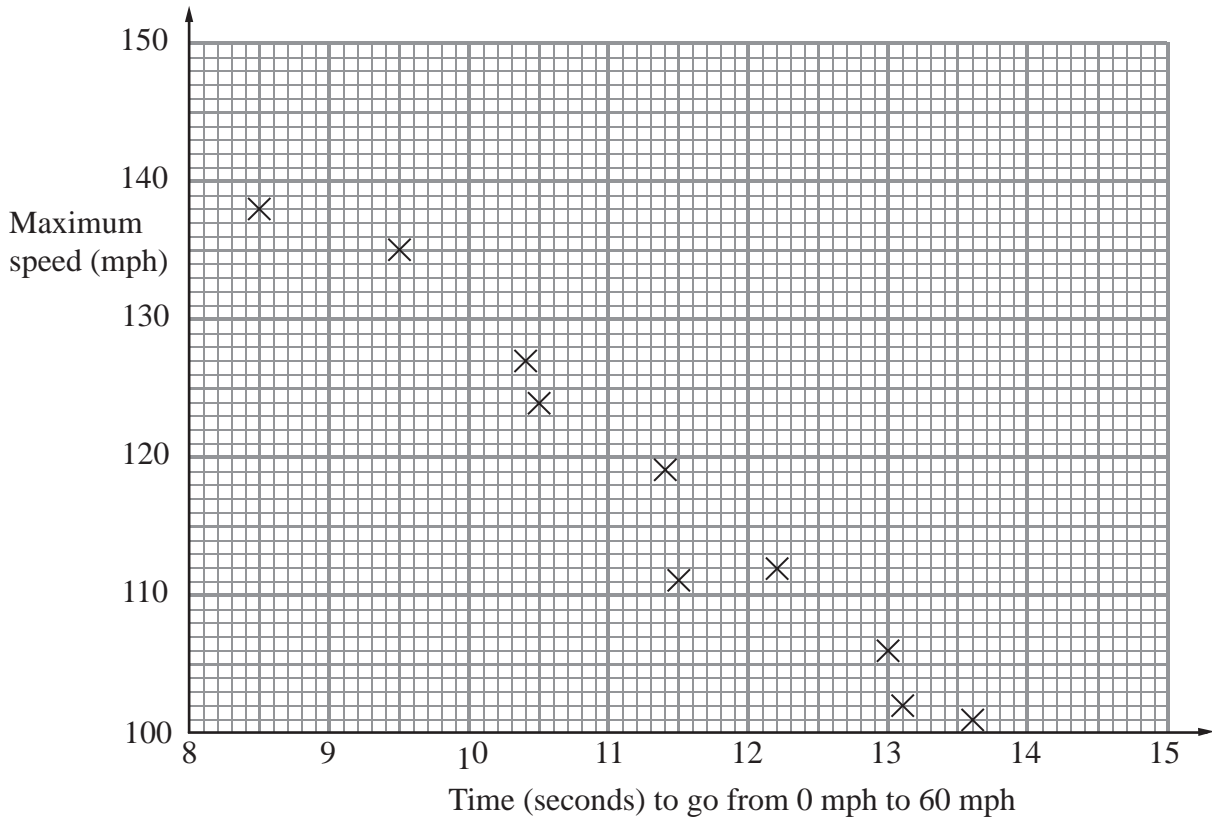Tick the correct box.

☐ Yes   ☐ No

Give a reason for your answer.

(1)

(Total 6 marks)

2. The scatter graph shows some information about 10 cars.
It shows the time, in seconds, it takes each car to go from 0 mph to 60 mph.
For each car, it also shows the maximum speed, in mph.

(a) What type of correlation does this scatter graph show?

....
(1)

The time a car takes to go from 0 mph to 60 mph is 11 seconds.

(b) Estimate the maximum speed for this car.

.... mph
(2)

(Total 3 marks)

3. The scatter graph shows information about eight dogs.
It shows the height and the length of each dog.
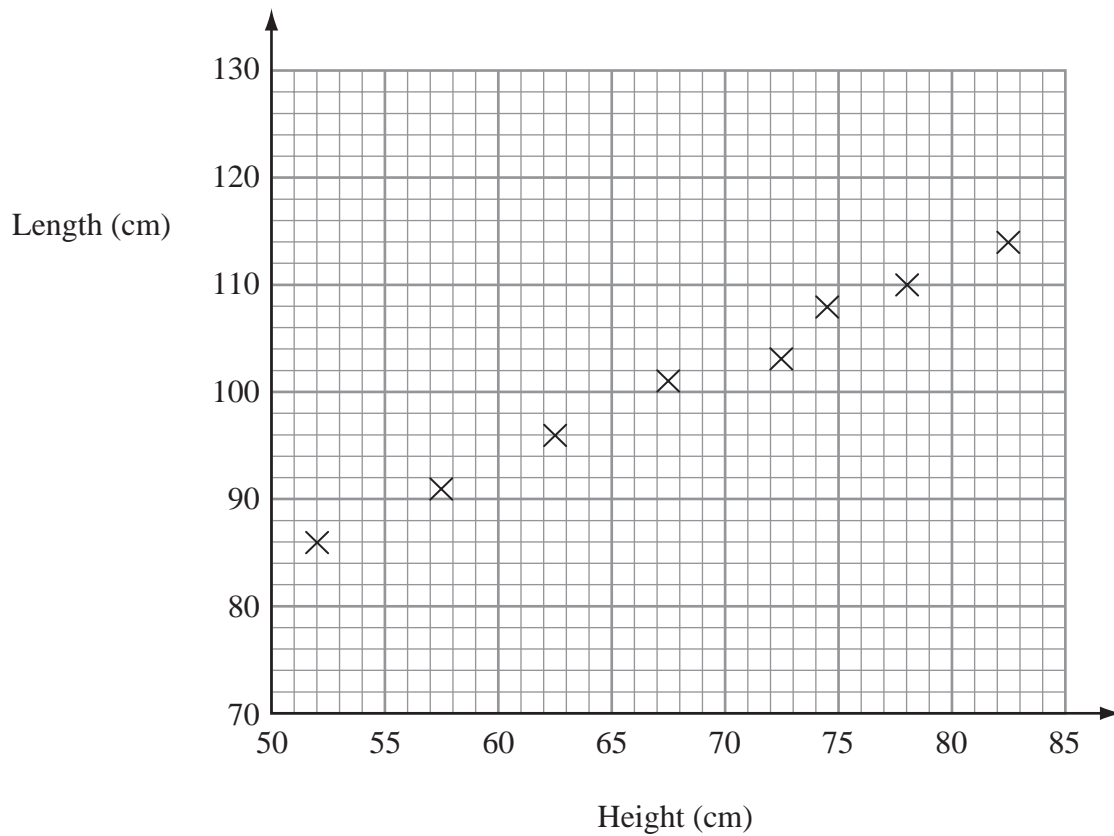
Length (cm)

Height (cm)

The table gives the height and the length of two more dogs.

Height (cm)	65	80
Length (cm)	100	110

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

(1)

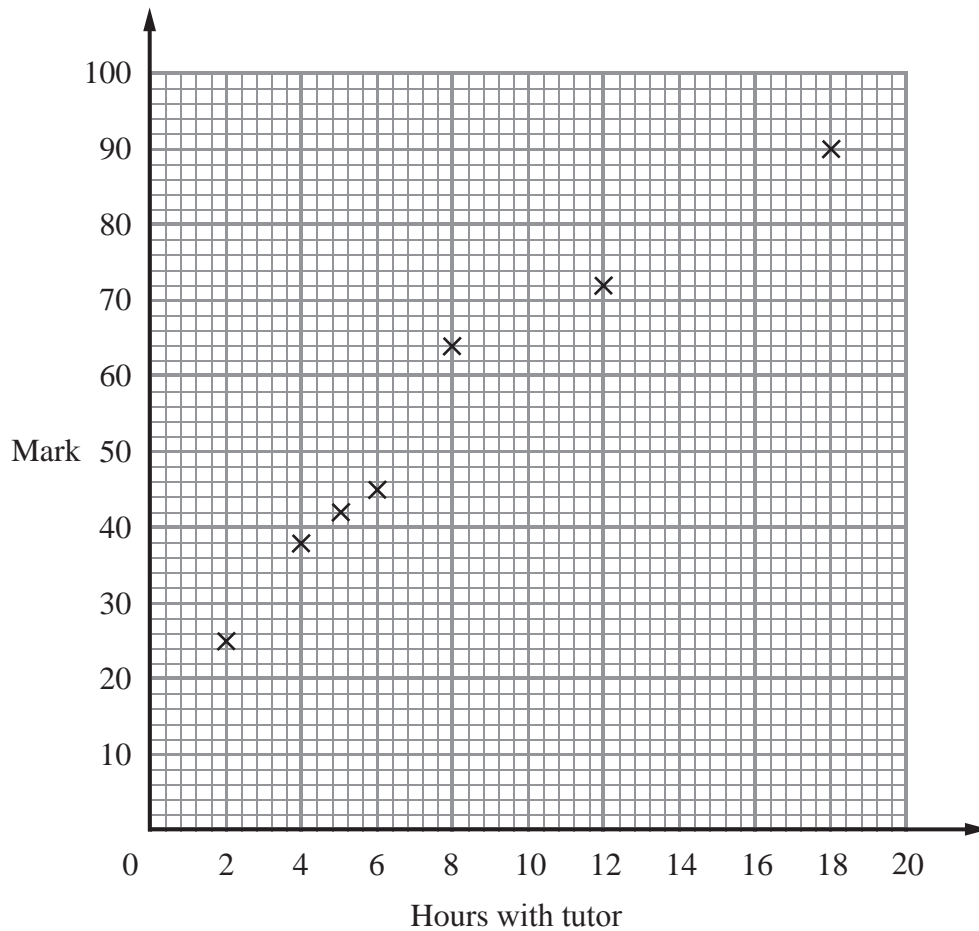(b) Describe the relationship between the height and the length of these dog.

....

(1)

The height of a dog is 76 cm.

(c) Estimate the length of this dog.

................................cm

(2)

(Total 4 marks)

4. Some students revised for a mathematics exam.
They used a private tutor.
The scatter graph shows the times seven students spent with the tutor and the marks the students got in the mathematics exam.

Here is the information for 3 more students.

Hours with tutor	7	10	16
Mark	50	56	78

(a) Plot this information on the scatter graph.

(1)

(b) What type of correlation does this scatter graph show?
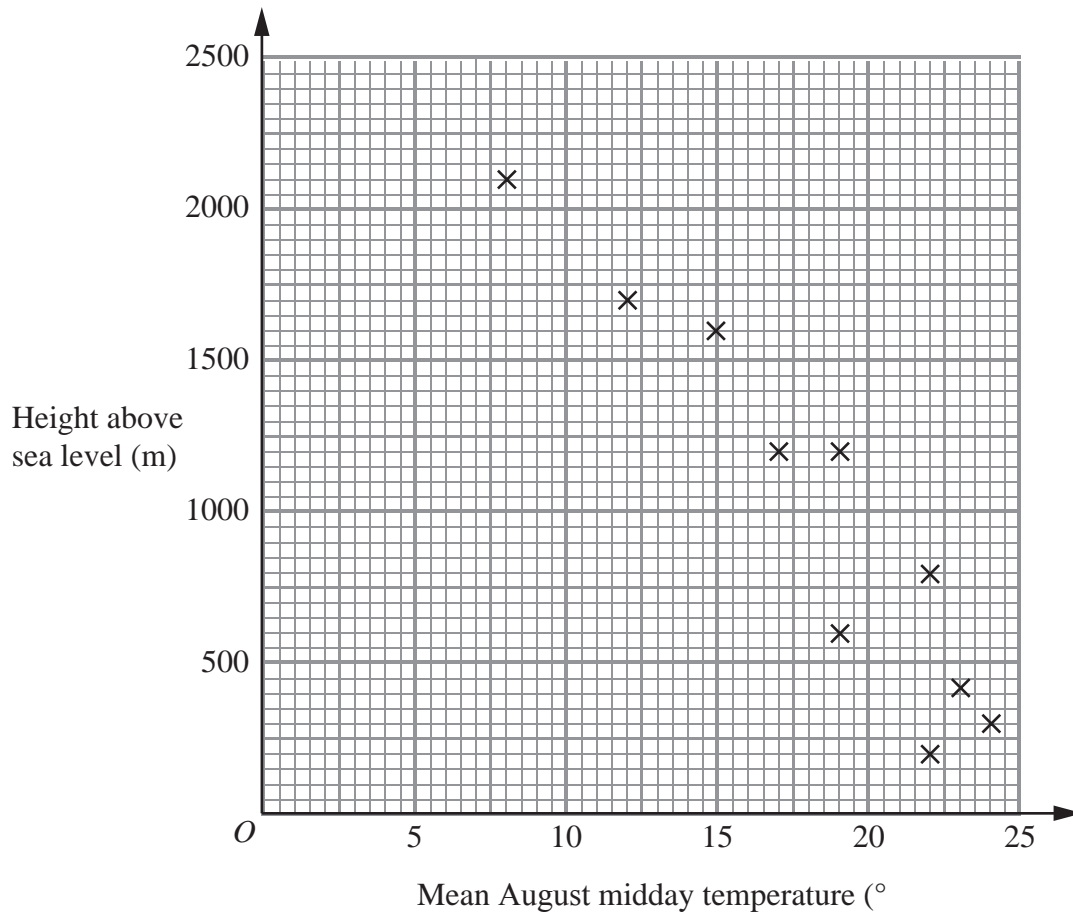
....
(1)

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

(1)

5. The scatter graph shows information for some weather stations.
It shows the height of each weather station above sea level (m) and the mean August midday temperature (°C) for that weather station.

Mean August midday temperature (°

C) The table shows this information for two more weather stations.

Height of weather station above sea level (m)	1000	500
Mean August midday temperature (°C)	20	22

(a) Plot this information on the scatter graph.

(1)

(b) What type of correlation does this scatter graph show?

....

(1)

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

(1)

6.   Mr Davies sells umbrellas.

The scatter graph shows some information about the number of umbrellas he sold and the rainfall, in cm, each month last year.
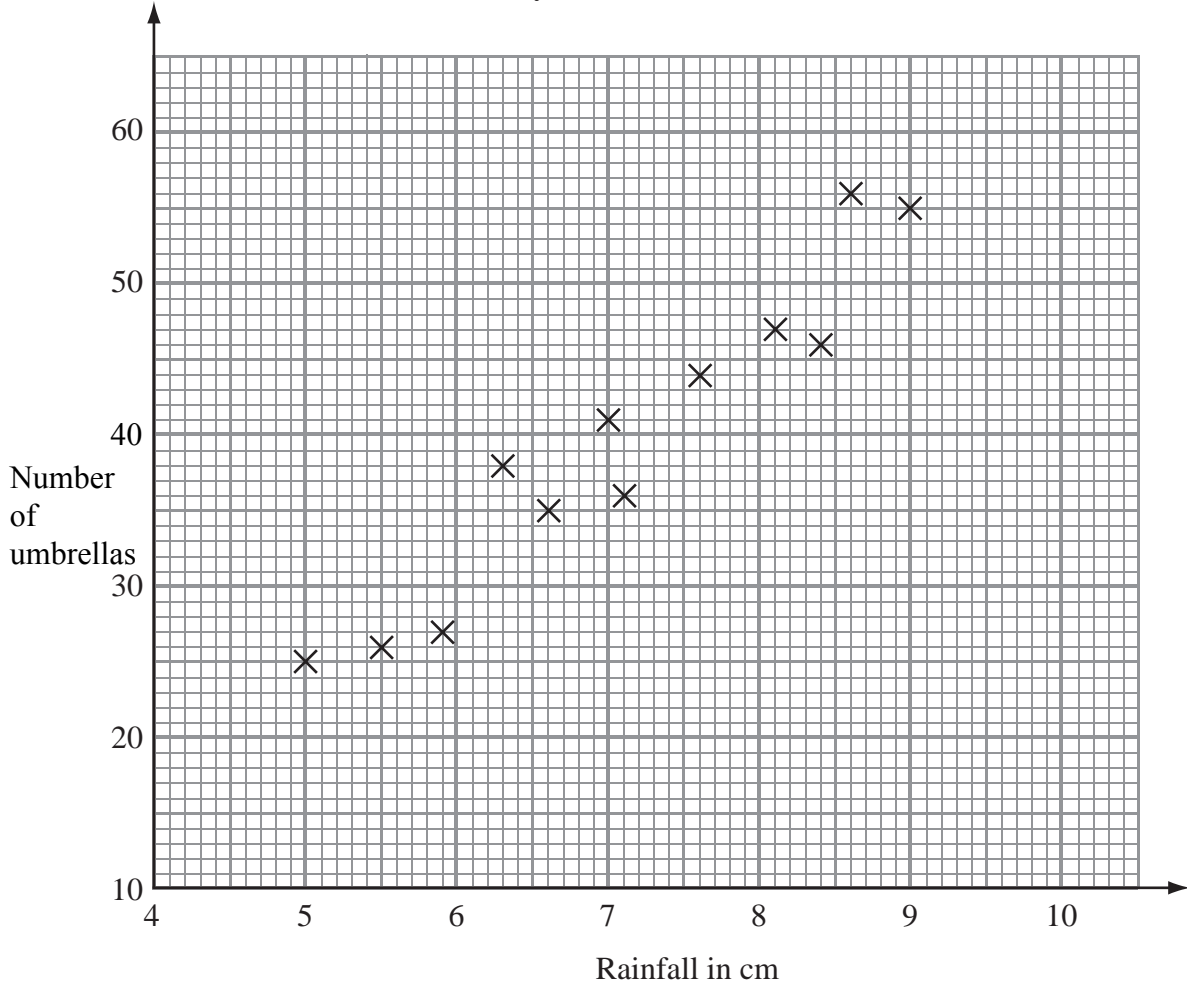
In January of this year, the rainfall was 6.1 cm.

During January, Mr Davies sold 33 umbrellas.

(a) Show this information on the scatter graph.

(1)

(b) What type of correlation does this scatter graph show?

....

(1)

In February of this year, Mr Davies sold 39 umbrellas.

(c) Estimate the rainfall for February.
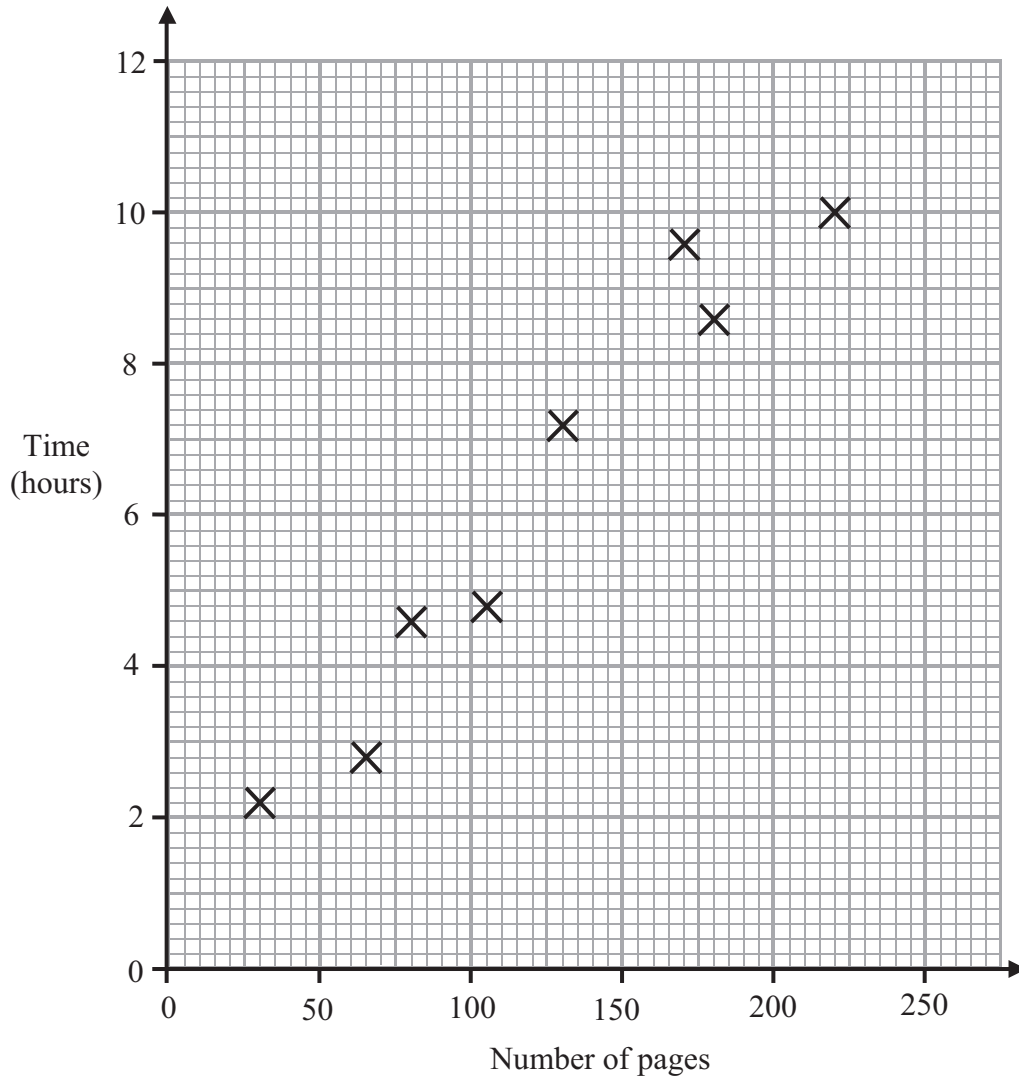
.... cm

(2)

(Total 4 marks)

7. Sophie reads eight books.

For each book she recorded the number of pages and the time she takes to read it.

The scatter graph shows information about her results.

(a) Describe the relationship between the number of pages in a book and the time Sophie takes to read it.

....

(1)

Sophie reads another book.
The book has 200 pages.

(b) Estimate the time it takes Sophie to read it.
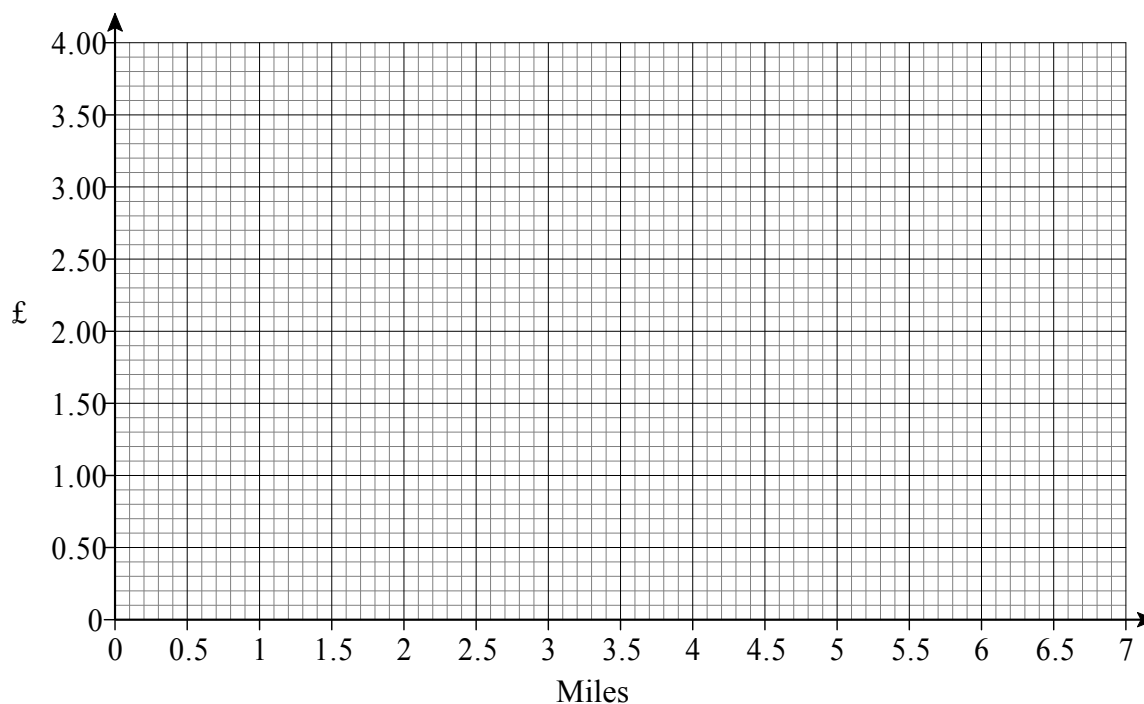
.... hours

(2)

(Total 3 marks)

8. The table shows the cost and length of different tram journeys across a city.

Length of journey (miles)	1.8	2.1	2.2	2.5	3.2	3.7	4.0	4.6	5.8	6.4
Cost of journey (£)	0.90	0.80	1.50	1.60	2.00	2.20	2.40	2.90	3.10	3.40

(a) Draw a scatter diagram for the data on the grid below.

(2)

(b) Estimate the cost of tram journey of length 5 miles.
Give your answer to the nearest ten pence.

....

£ ....

(2)