
Question 1

9 different models of car were tested to see how long it took each car to travel 500 metres from a standing start. The times, together with the size of each engine, are shown in the table.

Model	A	B	C	D	E	F	G	H	I
Engine Size cc	1000	1200	1250	1400	1450	1600	1800	1950	2000
Time (seconds)	26	23	23	21	21	19	18	16	14

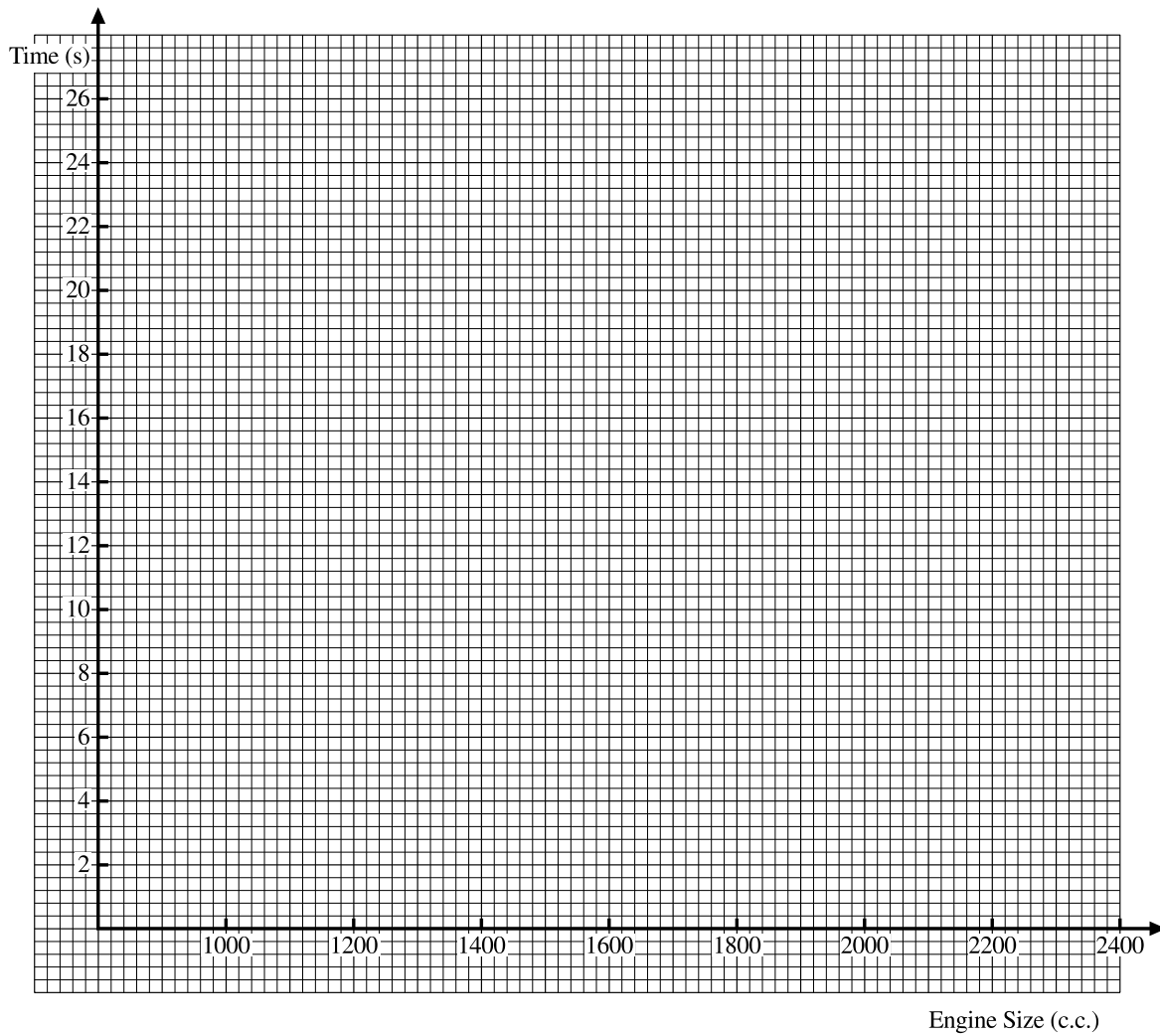
- (a) Plot these on the scatter diagram below. **(2 marks)**
- (b) Describe the relationship between the time it takes for a car to travel 500 metres and the size of its engine. **(1 mark)**
- (c) Use your scatter diagram to estimate the time taken to travel 500 metres by a car with an engine size of 1700 cc. **(1 mark)**

A model is selected at random from the above table.

- (d) Work out the probability it will have an engine size greater than 1400 cc. **(1 mark)**

Each model name is written on a different piece of paper. Each piece of paper is put in the same hat. A piece of paper is drawn at random from the hat.

- (e) Work out the probability that it will have the name of a model that has an engine size greater than 1400 cc as well as a time less than 18 seconds. **(1 mark)**



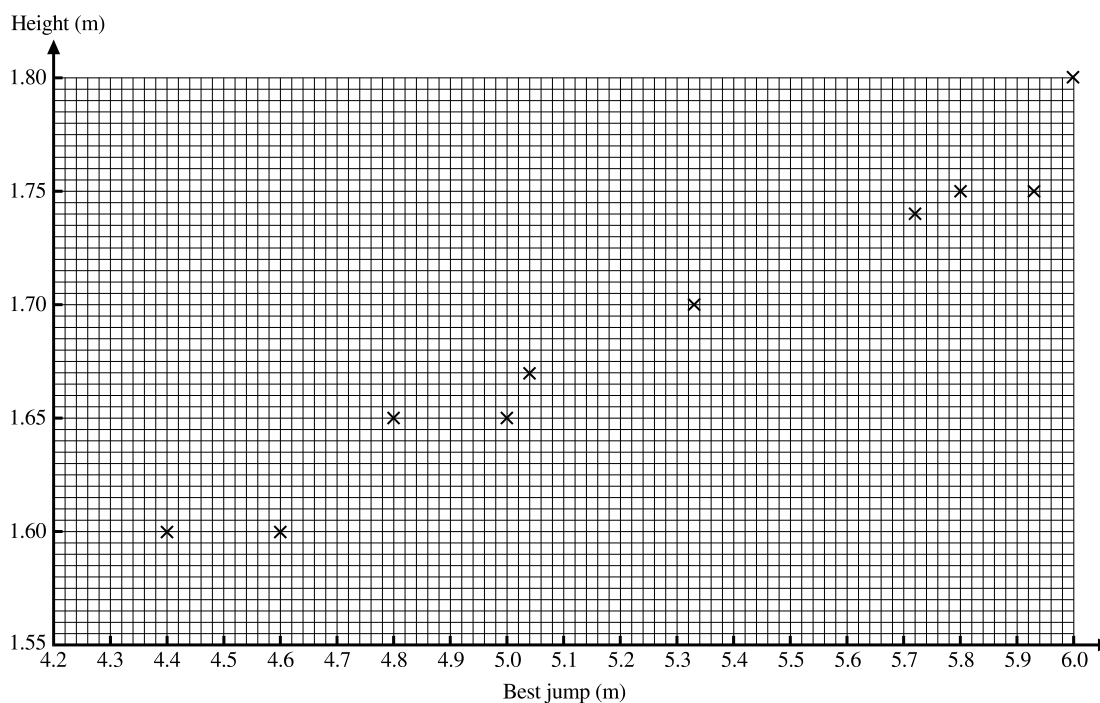
Question 2

Ten men took part in a long jump competition.

The table shows the heights of the ten men and the best jumps they made.

Best jump (m)	5.33	6.00	5.00	5.95	4.80	5.72	4.60	5.80	4.40	5.04
Height of men (m)	1.70	1.80	1.65	1.75	1.65	1.74	1.60	1.75	1.60	1.67

This information is shown in the scatter graph below.



(a) Draw a line of best fit **(2 marks)**

(b) Use your line of best fit to estimate

i) the height of a man who could make a best jump of 5.2 m.

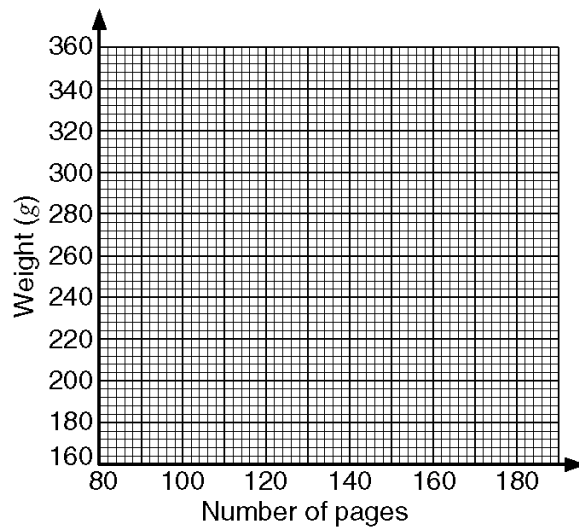
ii) the best jump of a man of height 1.73 m. **(2 marks)**

Question 3

The table lists the weights of twelve books and the number of pages in each one.

Number of pages	Weight (g)
80	160
155	330
100	200
125	260
145	320
90	180
140	290
160	330
135	260
100	180
115	230
165	350

- (a) Draw a scatter graph to show the information in the table.

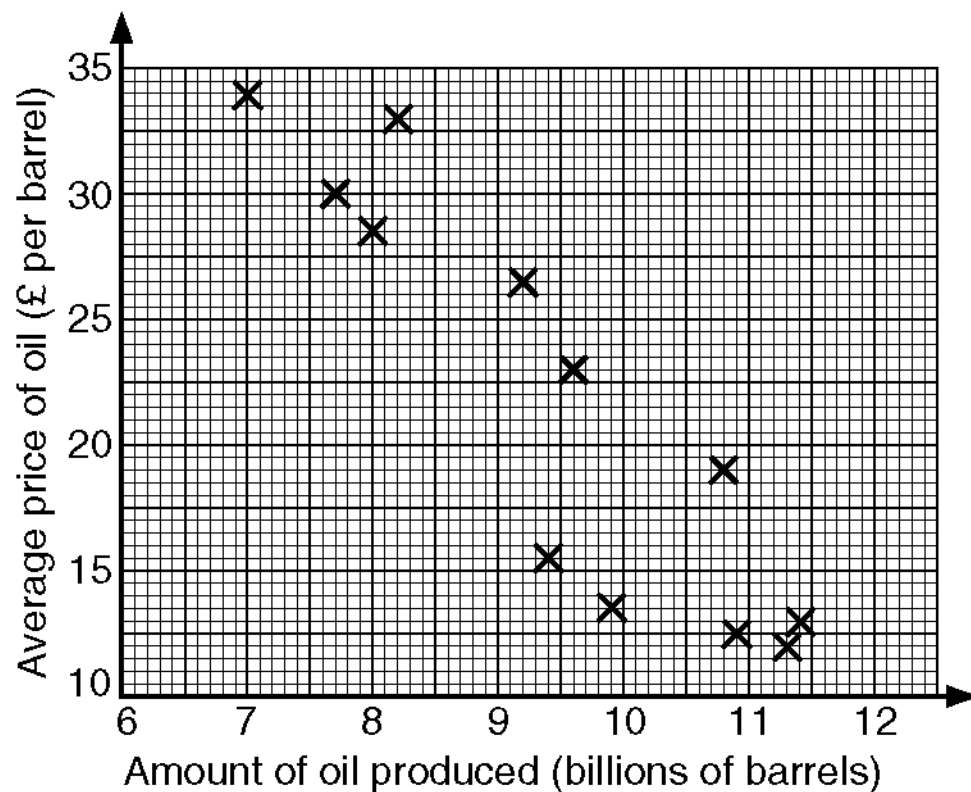


- (b) Describe the correlation between the number of pages in these books and their weights.

Question 4

Information about oil was recorded each year for 12 years.

The scatter graph shows the amount of oil produced (in billions of barrels) and # the average price of oil (in £ per barrel).



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

In another year the amount of oil produced was 10.4 billion barrels.

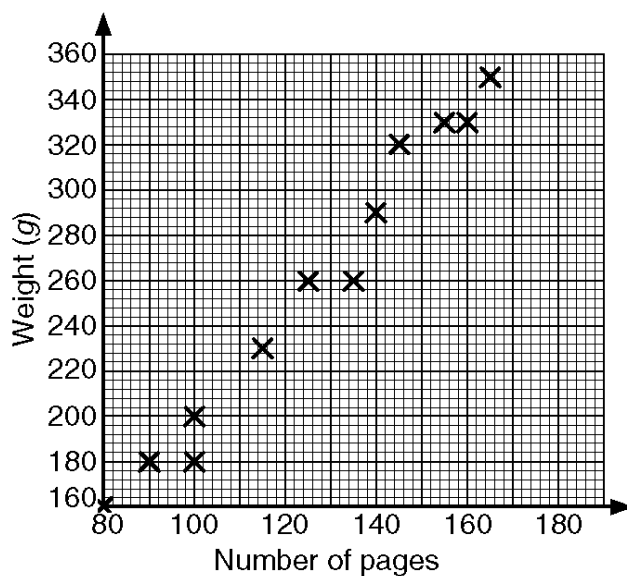
(b) Use your line of best fit to estimate the average price of oil per barrel in that year.

Question 5

The table lists the weights of twelve books and the number of pages in each one.

Number of pages	Weight (g)
80	160
155	330
100	200
125	260
145	320
145	260
90	180
140	290
160	330
135	260
100	180
115	230
165	350

This information is presented below as a scatter graph.



- (a) Draw a line of best fit on your scatter graph.
- (b) Use your line of best fit to estimate
- the number of pages in a book of weight 280 g,
 - the weight, in grams, of a book with 110 pages.

Question 6

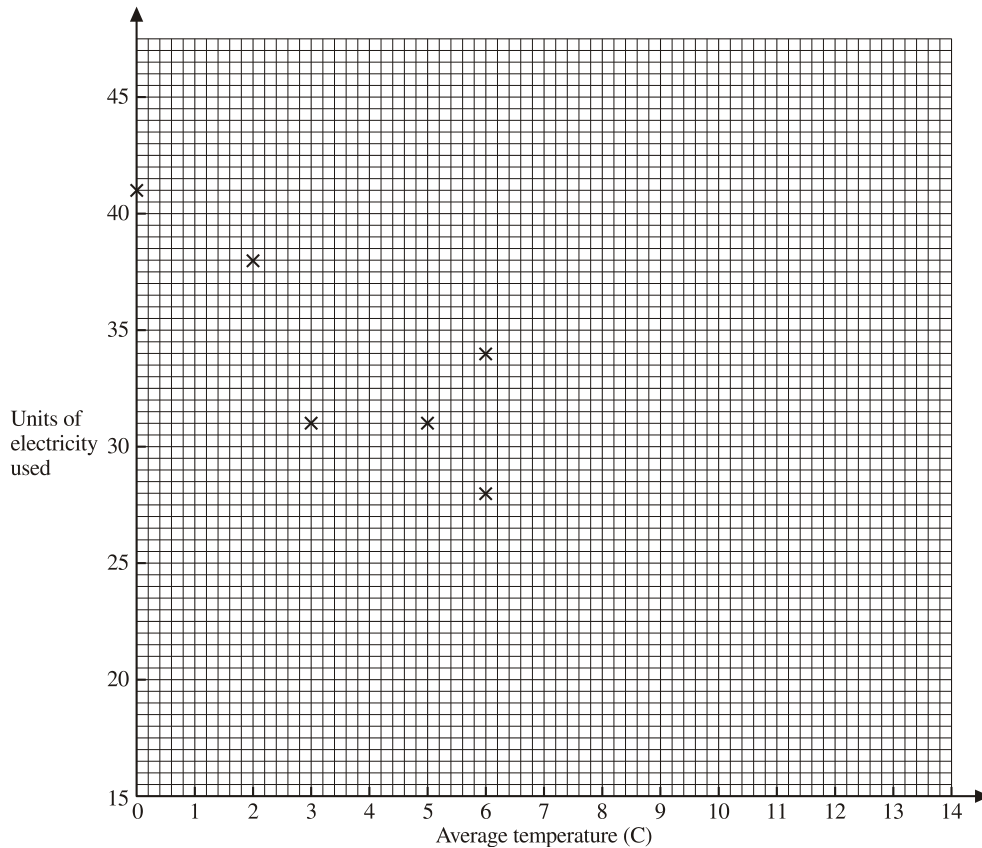
The table shows the number of units of electricity used in heating a house on ten different days and the average temperature for each day.

Average temperature (°C)	6	2	0	6	3	5	10	8	9	12
Units of electricity used	28	38	41	34	31	31	22	25	23	22

(a) Complete the scatter graph to show the information in the table.

The first 6 points have been plotted for you.

(2 marks)



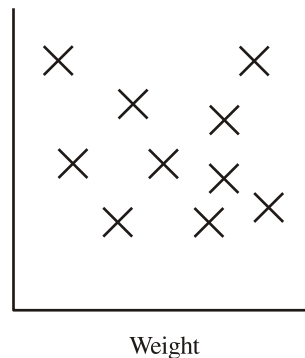
(b) Describe the **correlation** between the number of units of electricity used and the average temperature.

(1 mark)

Question 7

(a) Here is a scatter graph.

One axis is labelled “weight”.



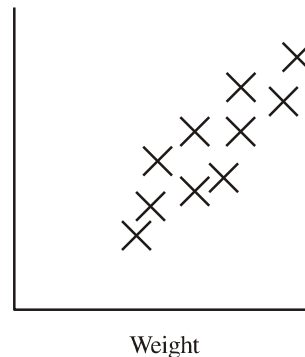
(i) For this graph state the type of correlation.

(ii) From this list choose an appropriate label for the other axis.

shoe size, length of hair, height, hat size, length of arm

(2 marks)

(b) Here is another scatter graph with one axis labelled “weight”.



(i) For this graph state the type of correlation.

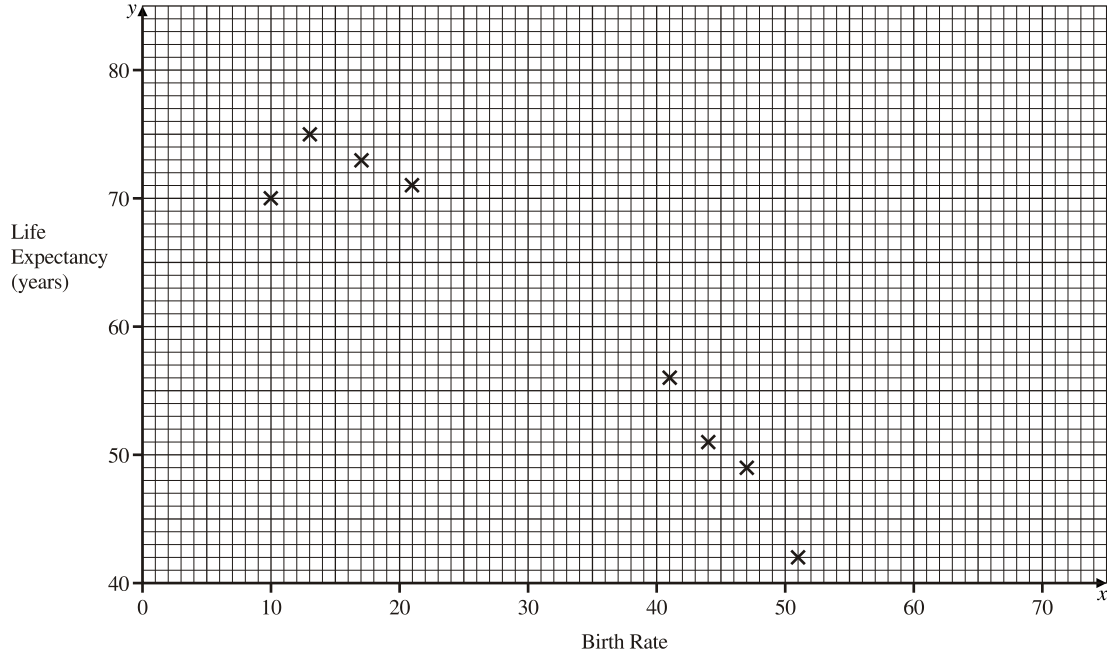
(ii) From this list choose an appropriate label for the other axis.

shoe size, distance around neck, waist measurement, GCSE Maths mark

(2 marks)

Question 8

The scatter graph shows information about eight countries.
For each country, it shows the birth rate and the life expectancy, in years.



The table shows the birth rate and the life expectancy for six more countries.

Birth Rate	25	28	30	31	34	38
Life Expectancy (years)	68	65	62	61	65	61

(a) On the scatter graph, plot the information from the table. **(2 marks)**

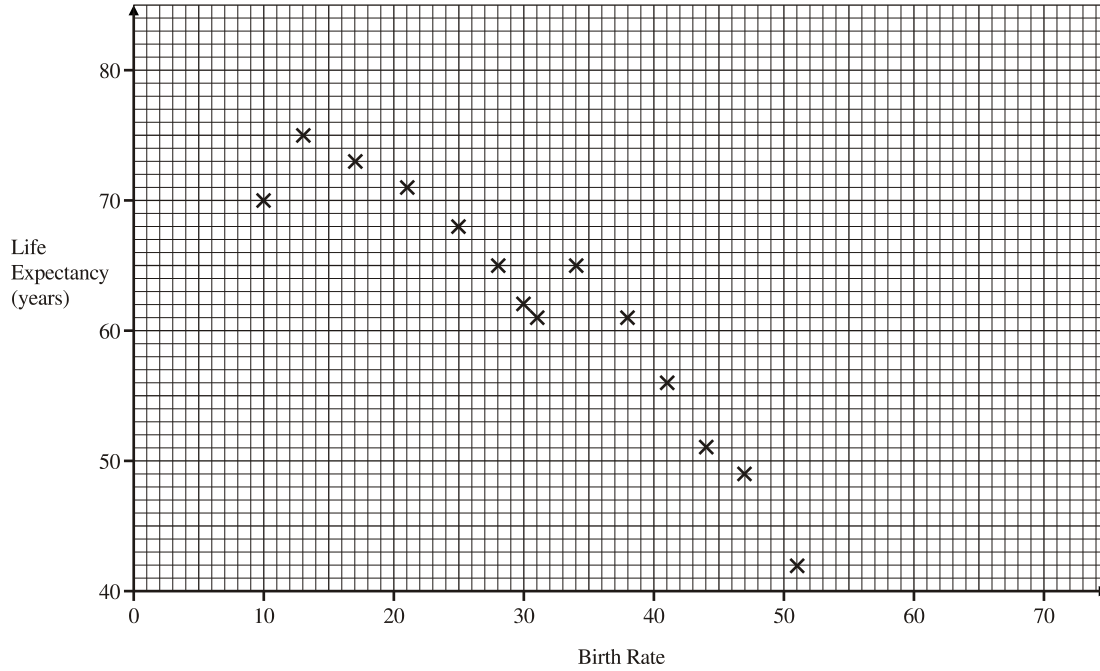
(b) Describe the relationship between the birth rate and the life expectancy. **(1 mark)**

The birth rate in a country is 42.

(c) Use your scatter graph to estimate the life expectancy in that country.
..... years **(1 mark)**

Question 9

The scatter graph shows information about fourteen countries.
For each country, it shows the birth rate and the life expectancy, in years.



(a) Draw a line of best fit on the scatter graph. **(2 marks)**

The birth rate in a country is 42.

(b) Use your line of best fit to estimate the life expectancy in that country.

..... years
(1 mark)

The life expectancy in a different country is 66 years.

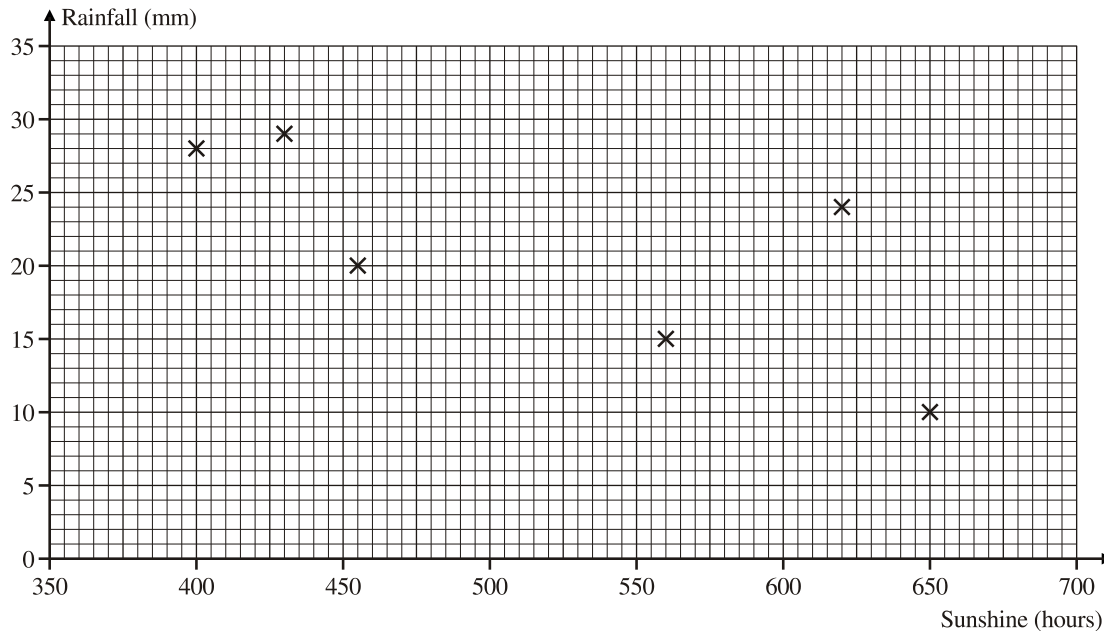
(c) Use your line of best fit to estimate the birth rate in that country.

(1 mark)

Question 10

The table shows the hours of sunshine and the rainfall, in mm, in 10 towns during last summer.

Sunshine (hours)	650	455	560	430	620	400	640	375	520	620
Rainfall (mm)	10	20	15	29	24	28	14	30	25	20



The points for the first six results in the table have been plotted in a scatter diagram.

- (a) Plot the other four points to complete the scatter diagram. **(1 mark)**
- (b) Describe the relationship between the hours of sunshine and the rainfall. **(1 mark)**
- (c) Draw a line of best fit on your scatter diagram. **(1 mark)**
- (d) Use your line of best fit to estimate
- (i) the rainfall when there are 450 hours of sunshine,
 mm
- (ii) the amount of sunshine when there are 18 mm of rainfall.
 hours
(2 marks)

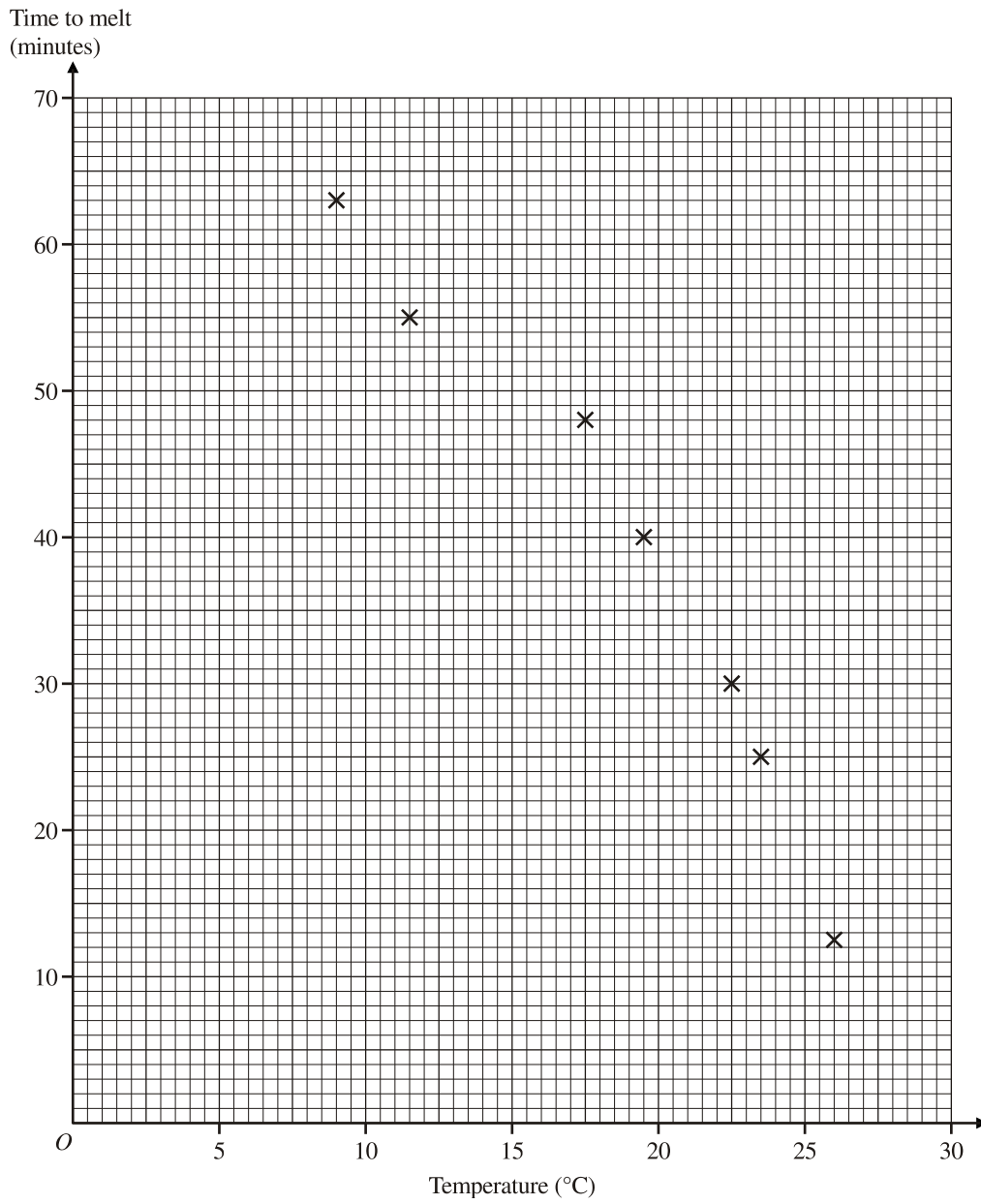
Question 11

On seven days, Helen recorded the time, in minutes, it took a 2 cm ice cube to melt. She also recorded the temperature, in °C, on that day.

Her results are shown in the scatter diagram opposite and in the table below.

Temperature (°C)	9	11.5	15	17	20	21	26
Time (minutes)	63	55	48	40	30	25	12.5

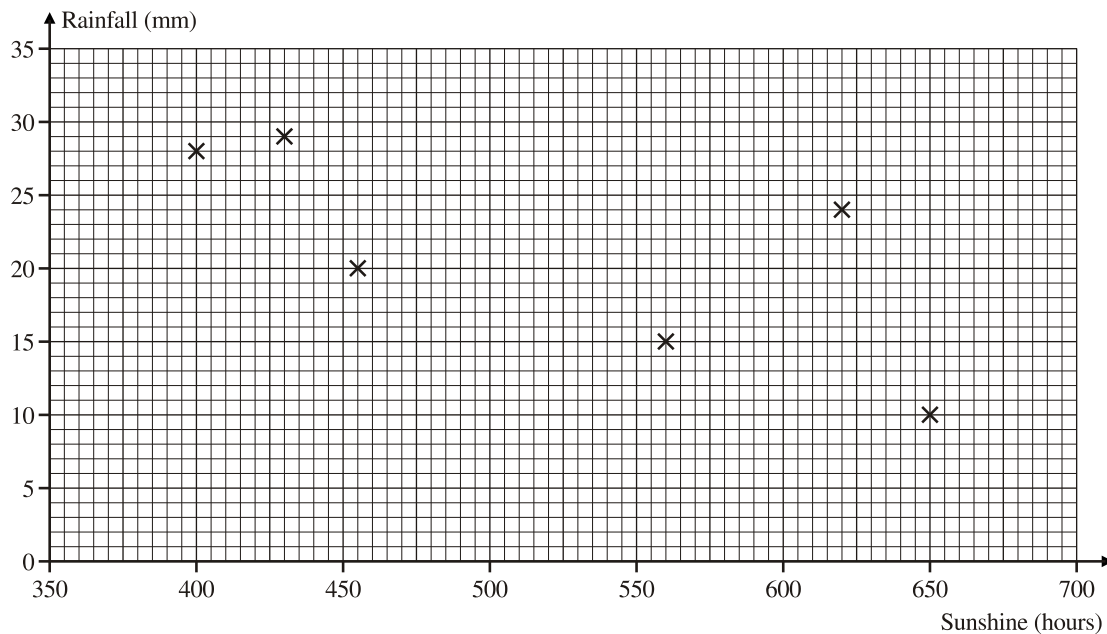
- (a) Draw a line of best fit on the scatter diagram. **(1 mark)**
- (b) Use your line of best fit to estimate the time it took for a 2 cm ice cube to melt when the temperature was 13°C.
..... min
(1 mark)
- (c) Use your line of best fit to estimate the temperature when a 2 cm ice cube took 19 minutes to melt.
..... °C
(1 mark)
- (d) Explain why the line of best fit could not be used to estimate the time it took a 2 cm ice cube to melt when the temperature was 35°C. **(1 mark)**



Question 12

The table shows the hours of sunshine and the rainfall, in mm, in 10 towns during last summer.

Sunshine (hours)	650	455	560	430	620	400	640	375	520	620
Rainfall (mm)	10	20	15	29	24	28	14	30	25	20

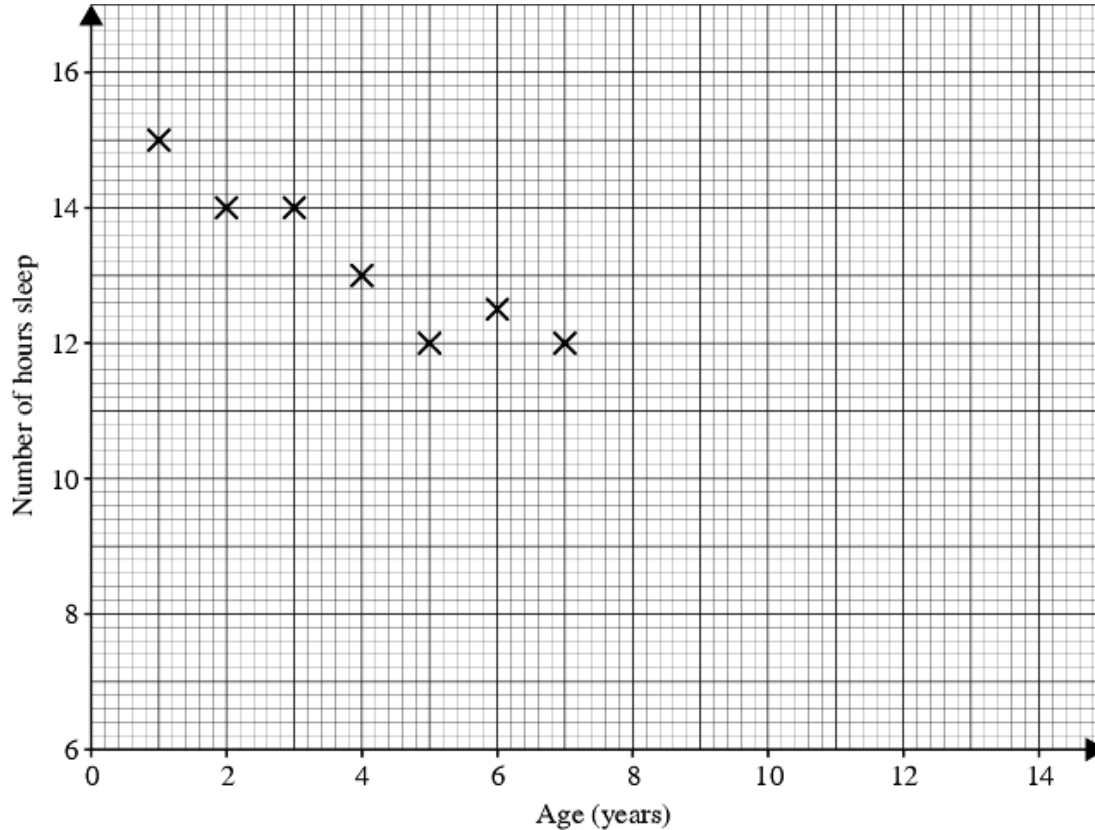


The points for the first six results in the table have been plotted in a scatter diagram.

- (a) Plot the other four points to complete the scatter diagram. **(1 mark)**
- (b) Describe the relationship between the hours of sunshine and the rainfall. **(1 mark)**

Question 13

The scatter graph shows some information about seven children.
It shows the age of each child and the number of hours sleep each child had last night.



The table shows the ages of four more children and the number of hours sleep each of them had last night.

Age (years)	10	11	12	13
Number of hours sleep	11	10	10.5	9.6

(a) On the scatter graph, plot the information from the table. **(2 marks)**

(b) Describe the **correlation** between the age, in years, of the children and the number of hours sleep they had last night.

.....
(1 mark)

(c) Use your scatter graph to estimate the number of hours sleep for an 8 year old child.

.....

(1 mark)