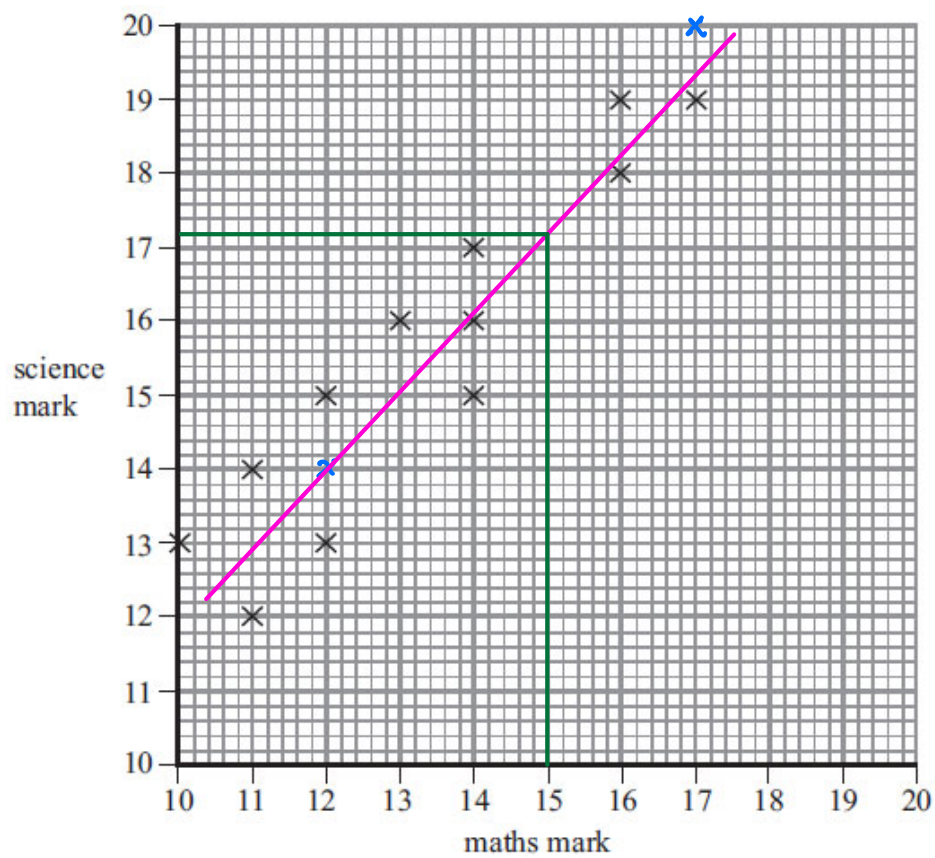# Questions

Q1.

Mr Kent's students did a maths test and a science test.
The scatter graph shows the marks of 12 of these students.

The table shows the marks of two more students.

Name	maths	science
Masood	12	14
Nimer	17	20

(a) Show this information on the scatter graph.

(1)

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

Positive

(1)

David did the maths test.
He was absent for the science test.

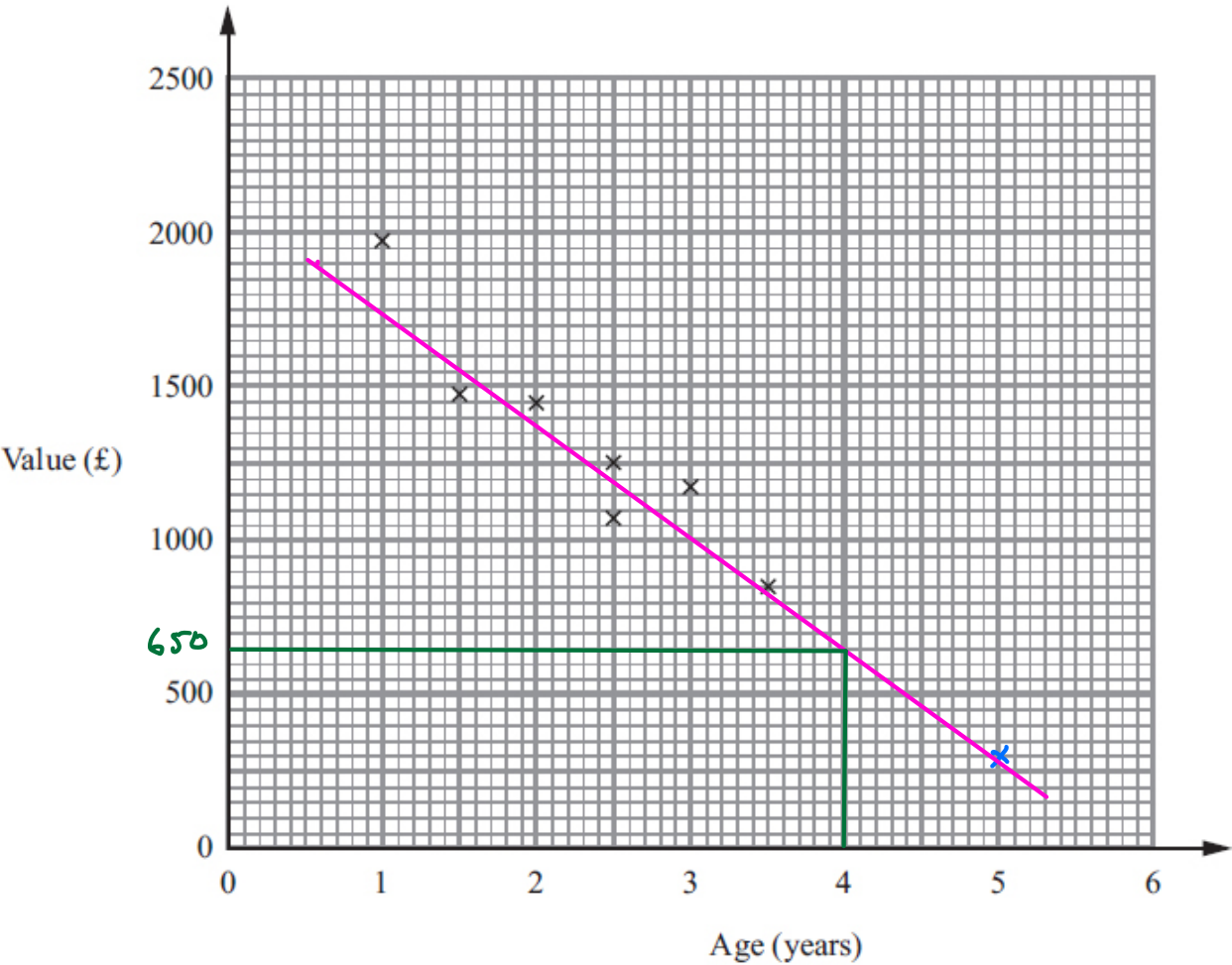David's mark in the maths test was 15

(c) Estimate a science mark for David.

17

....

(2)

(Total for Question is 4 marks)

Q2.

The scatter graph shows information about the ages and values of seven Varley motor scooters.

Another Varley motor scooter is 5 years old.
It has a value of £300

(a) Show this information on the scatter graph.

(1)

(b) Describe the relationship between the age and the value of Varley motor scooters.

.... Strong negative correlation ....

....

....

....

(1)

A Varley motor scooter is 4 years old.

(c) Estimate its value.

£ ...... 650 ....

(2)

(Total for Question is 4 marks)

Q3.

Mr Kent's students did a maths test and a science test.
The scatter graph shows the marks of 12 of these students.

The table shows the marks of two more students.

Name	maths	science
Masood	12	14
Nimer	17	20

(a) Show this information on the scatter graph.

(1)

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

Positive

(1)

David did the maths test.
He was absent for the science test.

David's mark in the maths test was 15
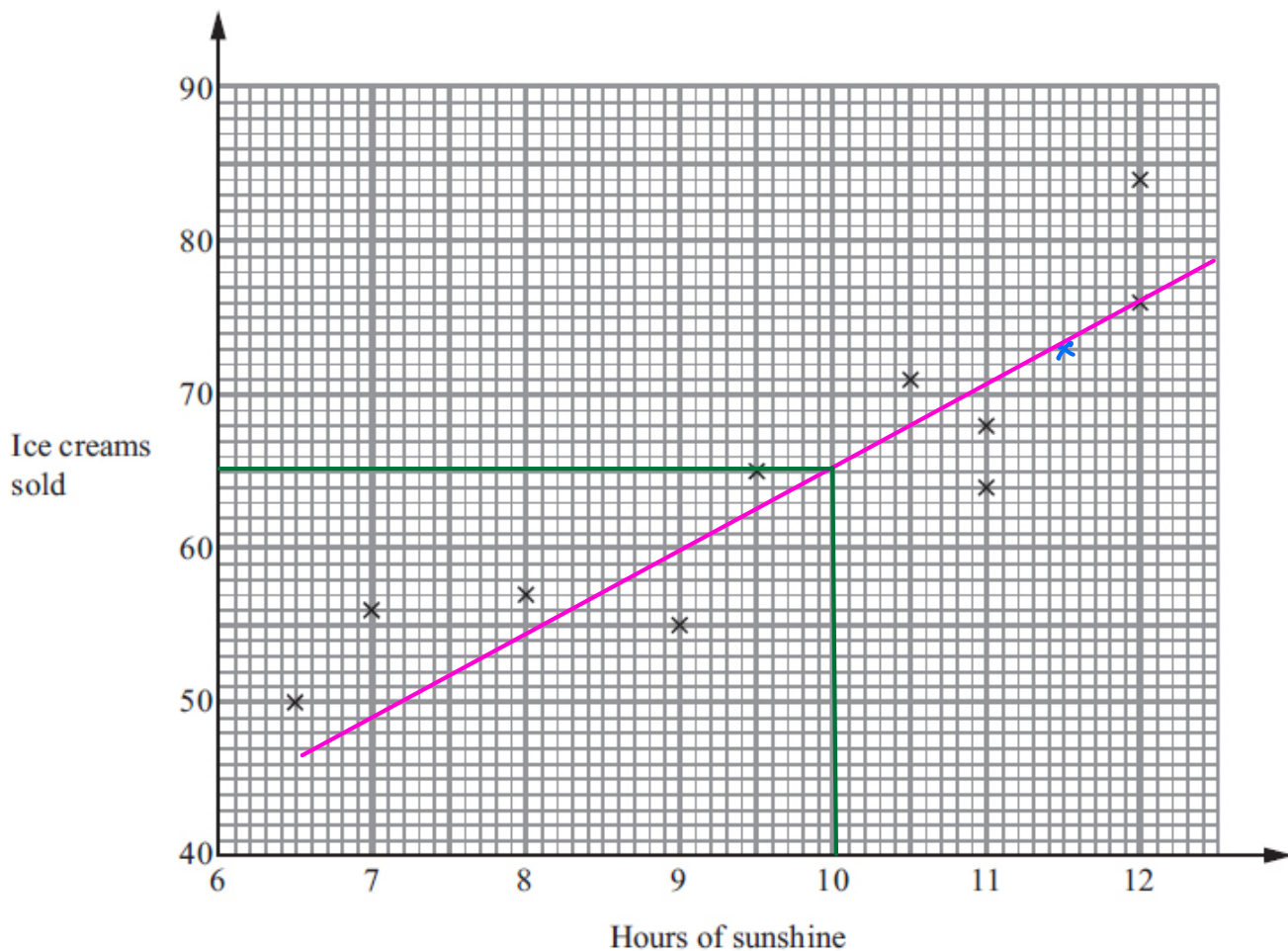
(c) Estimate a science mark for David.

17

(2)
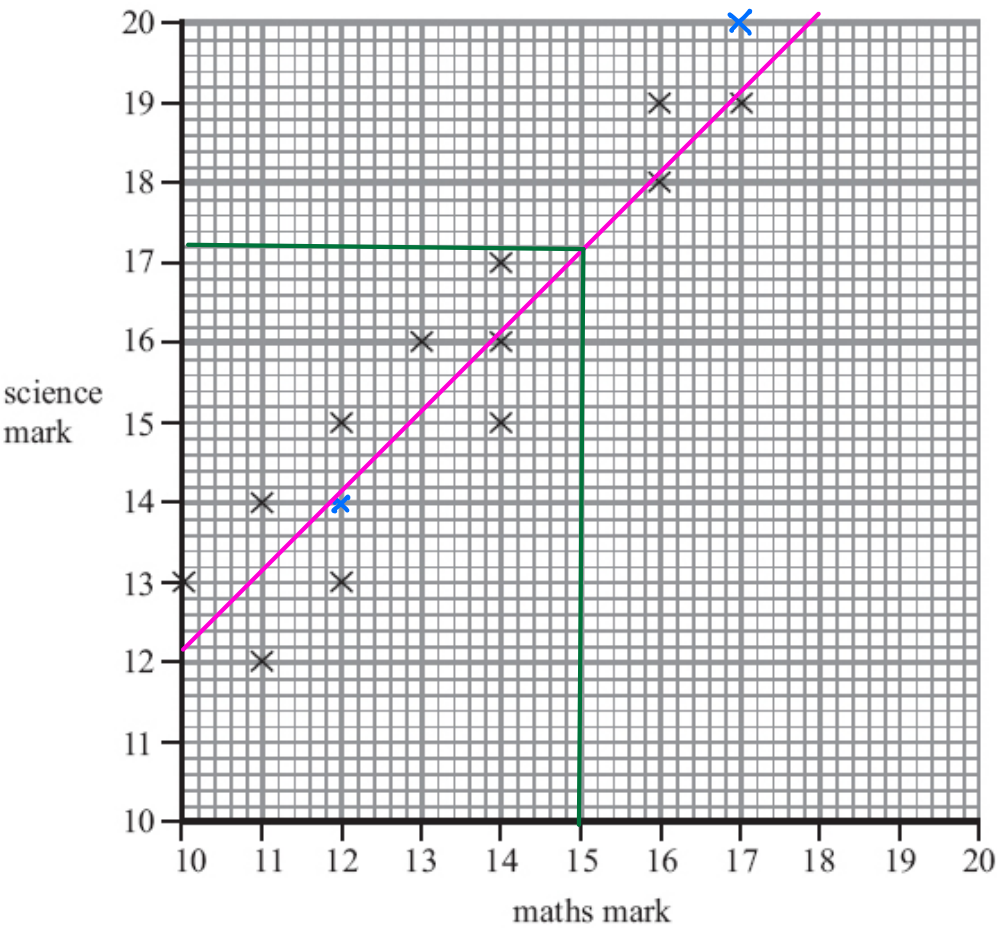
(Total for Question is 4 marks)

Q4.

A beach cafe sells ice creams.
Each day the manager records the number of hours of sunshine and the number of ice creams sold.

The scatter graph shows this information.

On another day there were 11.5 hours of sunshine and 73 ice creams sold.

(a) Show this information on the scatter graph.

(1)

(b) Describe the relationship between the number of hours of sunshine and the number of ice creams sold.

.... *Positive   correlation* ....
....

....
....

(1)

One day had 10 hours of sunshine.

(c) Estimate how many ice creams were sold.

.... *65* ....

(2)

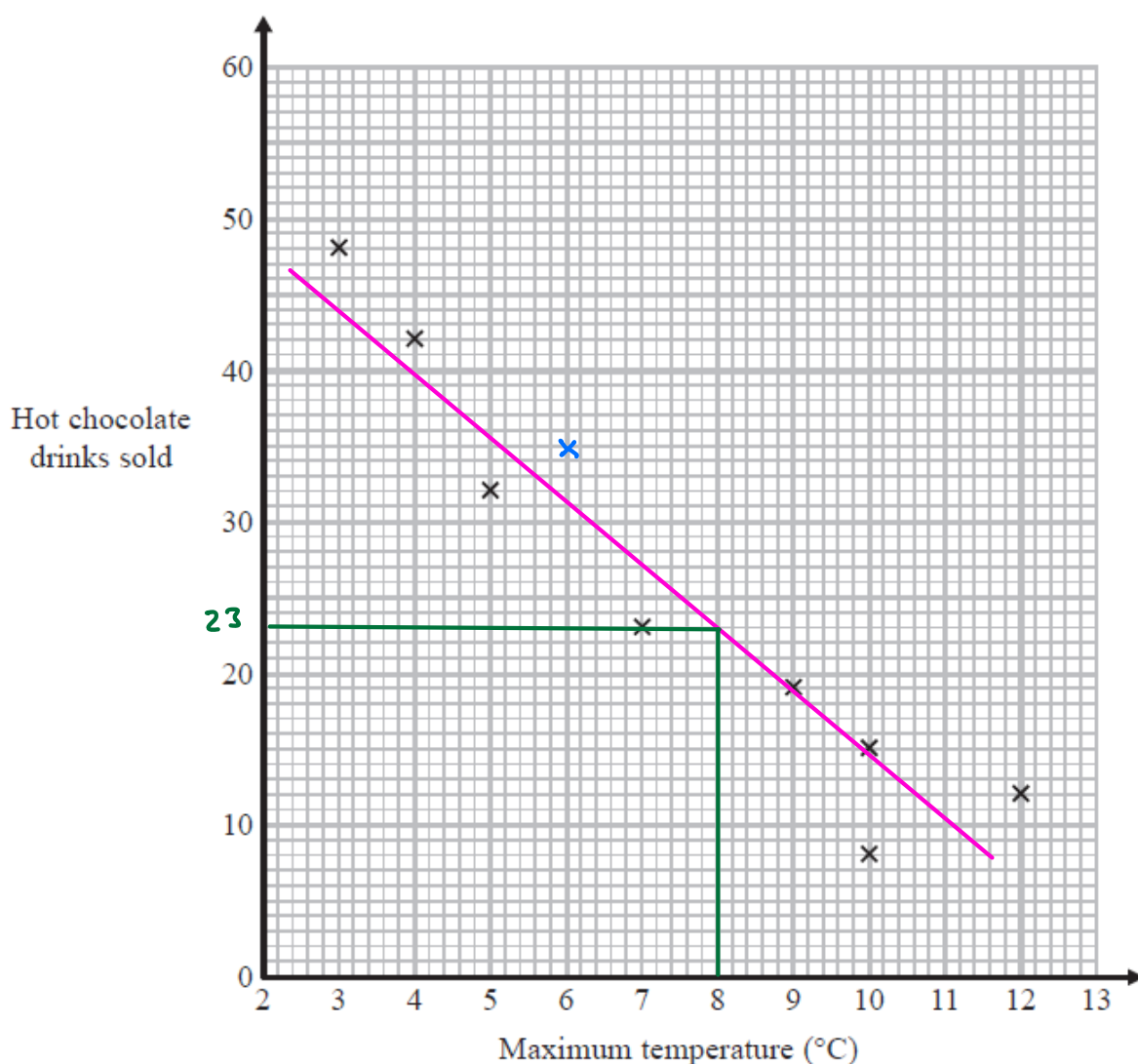**(Total for Question is 4 marks)**

Q5.

Carlos has a cafe in Clacton.
Each day, he records the maximum temperature in degrees Celsius (°C) in Clacton and the number of hot chocolate drinks sold.

The scatter graph shows this information.

On another day the maximum temperature was 6 °C and 35 hot chocolate drinks were sold.

(a) Show this information on the scatter graph.

(1)

(b) Describe the relationship between the maximum temperature and the number of hot chocolate drinks sold.

Negative Correlation

(1)

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

(1)

One day the maximum temperature was 8 °C.

(d) Use your line of best fit to estimate how many hot chocolate drinks were sold.

23

(1)

(Total for Question is 4 marks)
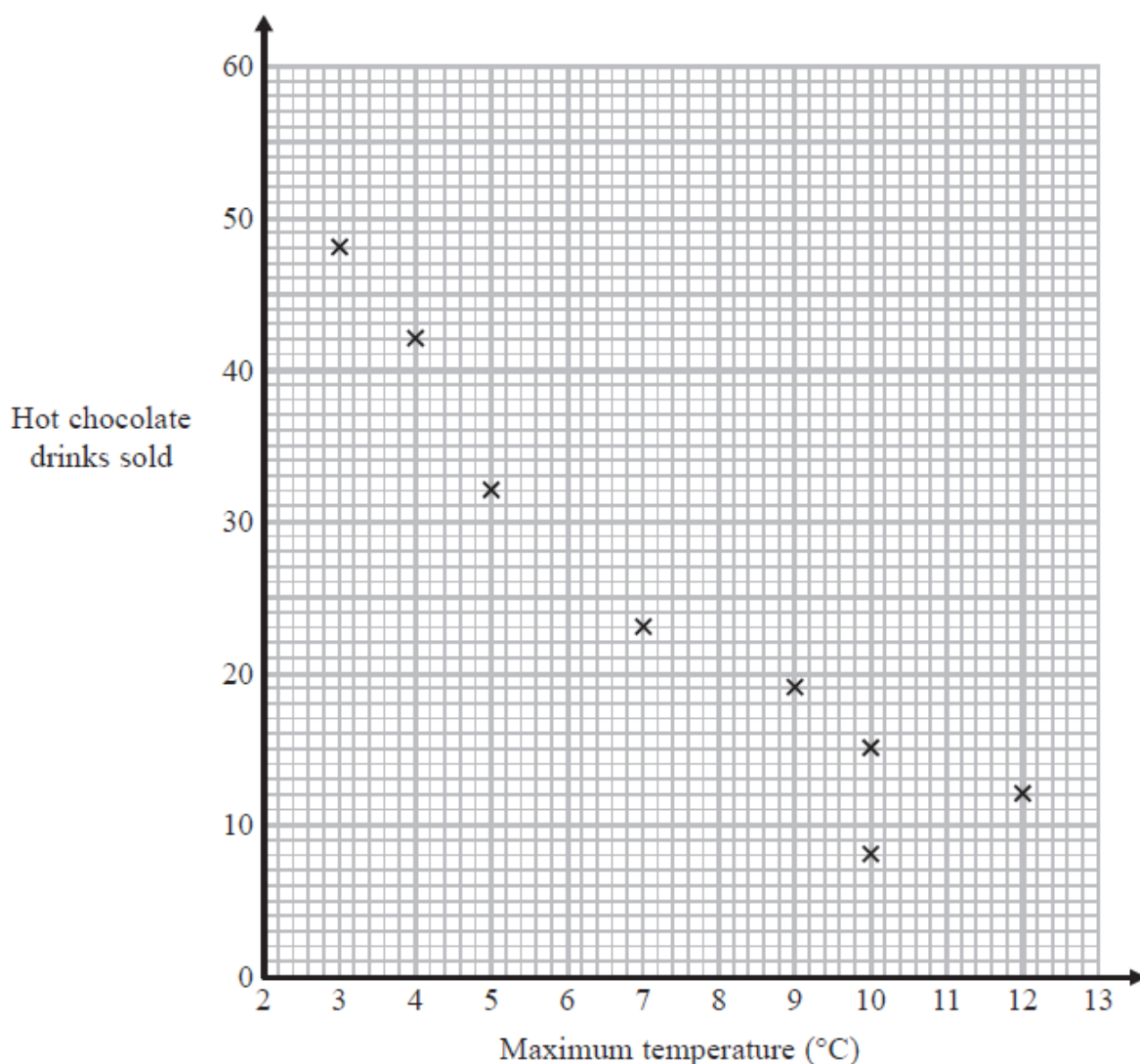
Q6.   SAME QUESTION AS Q5

Carlos has a cafe in Clacton.
Each day, he records the maximum temperature in degrees Celsius (°C) in Clacton and the number of hot chocolate drinks sold.

The scatter graph shows this information.

On another day the maximum temperature was 6 °C and 35 hot chocolate drinks were sold.

(a) Show this information on the scatter graph.

(b) Describe the relationship between the maximum temperature and the number of hot chocolate drinks sold.

....

....

(1)

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

(1)

One day the maximum temperature was 8 °C.

(d) Use your line of best fit to estimate how many hot chocolate drinks were sold.
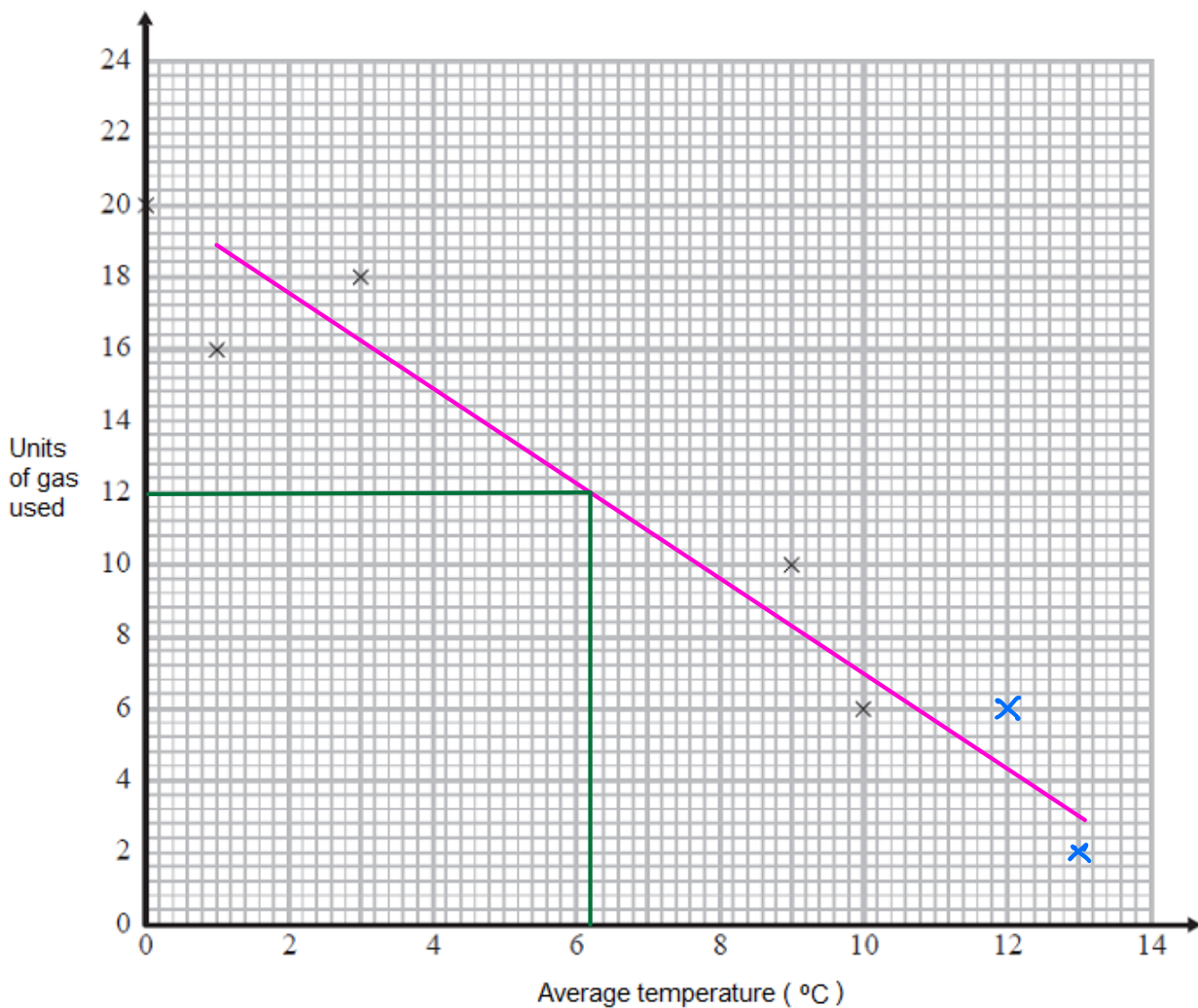
....

(1)

(Total for Question is 4 marks)

Q7.

The table shows the average temperature on each of seven days and the number of units of gas used to heat a house on these days.

Average temperature (°C)	0	1	3	9	10	12	13
Units of gas used	20	16	18	10	6	6	2

(a) Complete the scatter graph to show the information in the table.
The first 5 points have been plotted for you.

(1)

(b) Describe the relationship between the average temperature and the number of units of gas used.

.... Negative correlation ....

....

(1)

(c) Estimate the average temperature on a day when 12 units of gas are used.

.... 6.2 ....°C
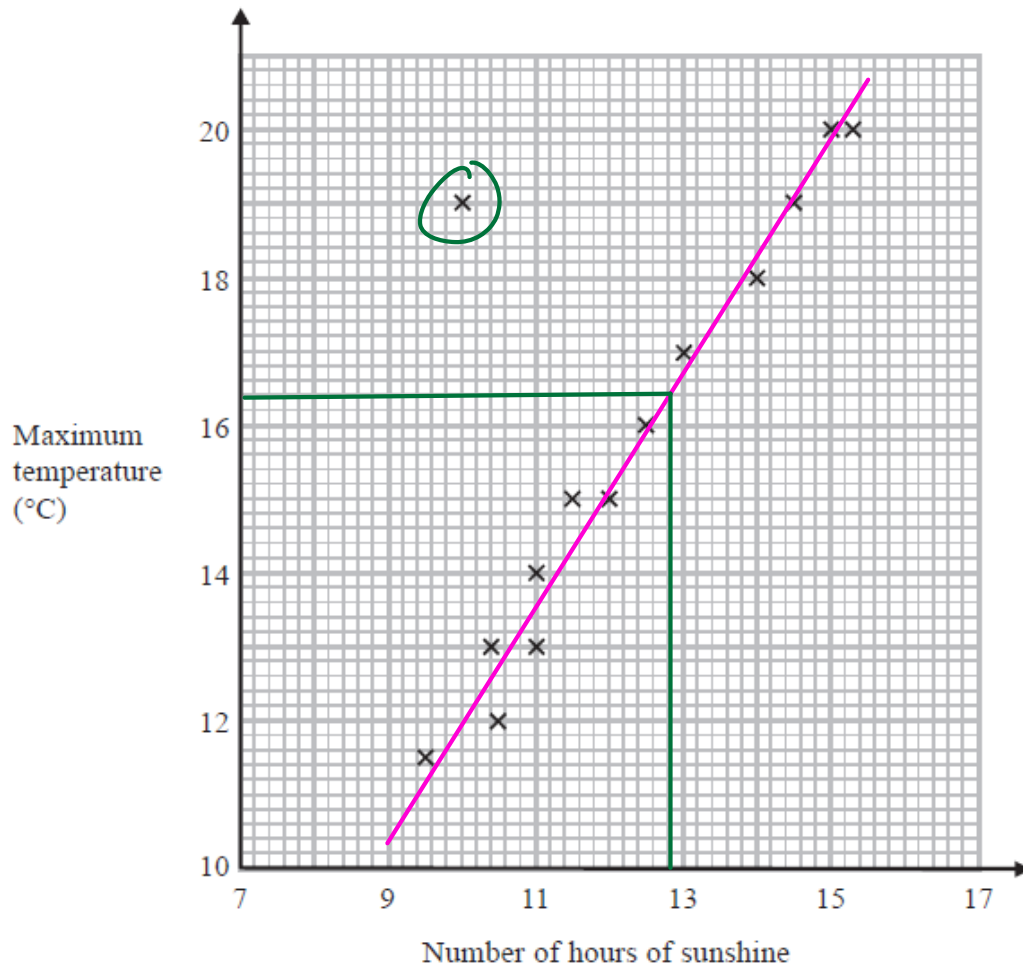
(2)

(Total for Question is 4 marks)

Q8.

The scatter graph shows the maximum temperature and the number of hours of sunshine in fourteen British towns on one day.

One of the points is an outlier.

(a) Write down the coordinates of this point.

(..... **10** ..... , ... **19** .....)

(1)

(b) For all the other points write down the type of correlation.

..... **Strong positive correlation** .....

(1)

On the same day, in another British town, the maximum temperature was 16.4°C.

(c) Estimate the number of hours of sunshine in this town on this day.

..... **13** ..... hours

(or 12 hrs 48 mins)

(2)

A weatherman says,

"Temperatures are higher on days when there is more sunshine."

(d) Does the scatter graph support what the weatherman says?

Give a reason for your answer.

.... **Yes — positive correlation** ....

....
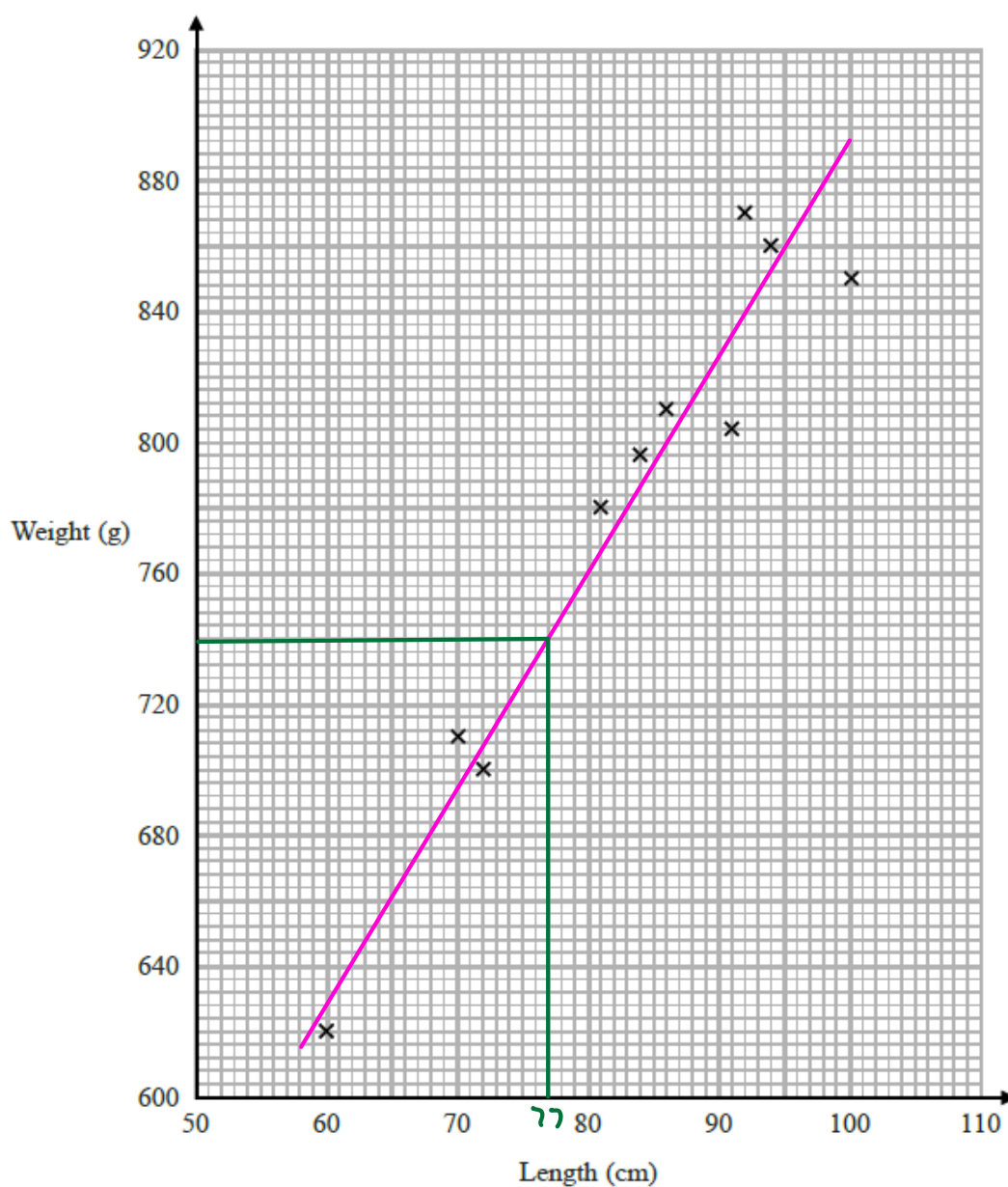
(Total for question = 5 marks)

Q9.

The scatter graph shows information about 10 adult snakes of the same type.

It shows the length and weight of each snake.

An adult snake of this type has a weight of 740 g.

(a) Use the scatter graph to estimate the length of this snake.

....77............................. cm

(2)

Steven wants to estimate the weight of an adult snake of length 110 cm.

He says he will draw a line of best fit and read off the weight at 110 cm.

(b) Explain what is wrong with his method.

He is extrapolating outside the region for which he has data. The result could be unreliable

(1)

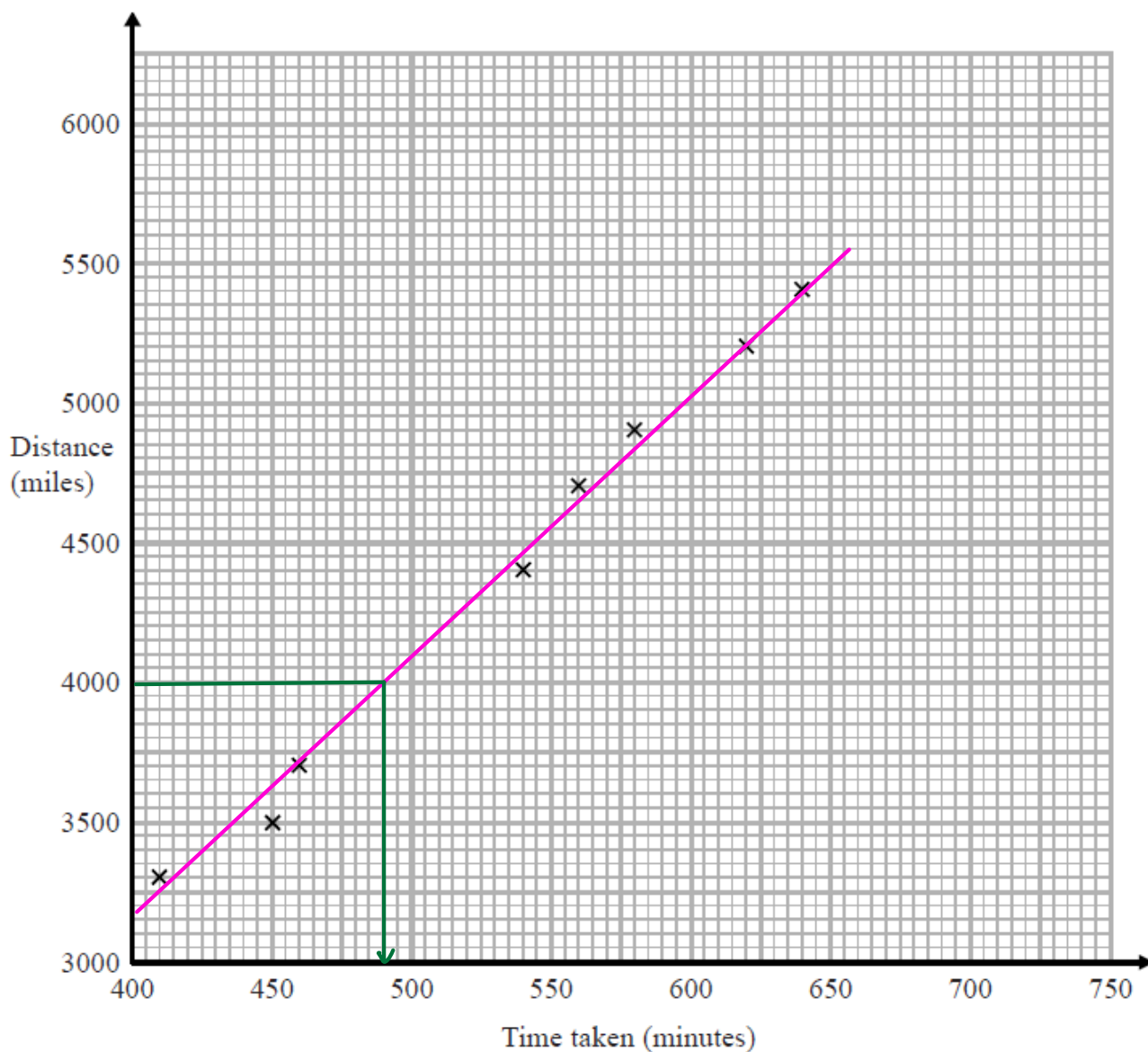**(Total for question = 3 marks)**

Q10.

Oliver records the distance from London to each of eight cities in the USA.
He also records the time taken to fly from London to each of these cities.

The scatter graph shows this information.

Chicago is a city in the USA.
Chicago is 4000 miles from London.

(a) (i) By drawing a line of best fit, find an estimate for the time taken to fly from London to Chicago.

.... 490 .... minutes

(2)

(ii) Why is your answer to part (i) only an estimate?

Because the positive correlation is not perfect Affected by other factors such as wind speed or selection of speed by pilot

(1)

(b) (i) Calculate the gradient of your line of best fit.

$$\frac{5500 - 3150}{650 - 400}$$

.... 9.4 .... miles/minute

(2)

(ii) Give an interpretation of the gradient of your line of best fit.

.... Average Speed in miles per minute ....

....

(1)

(Total for question = 6 marks)