SCATTER GRAPHS

[ESTIMATED TIME: 30 minutes]

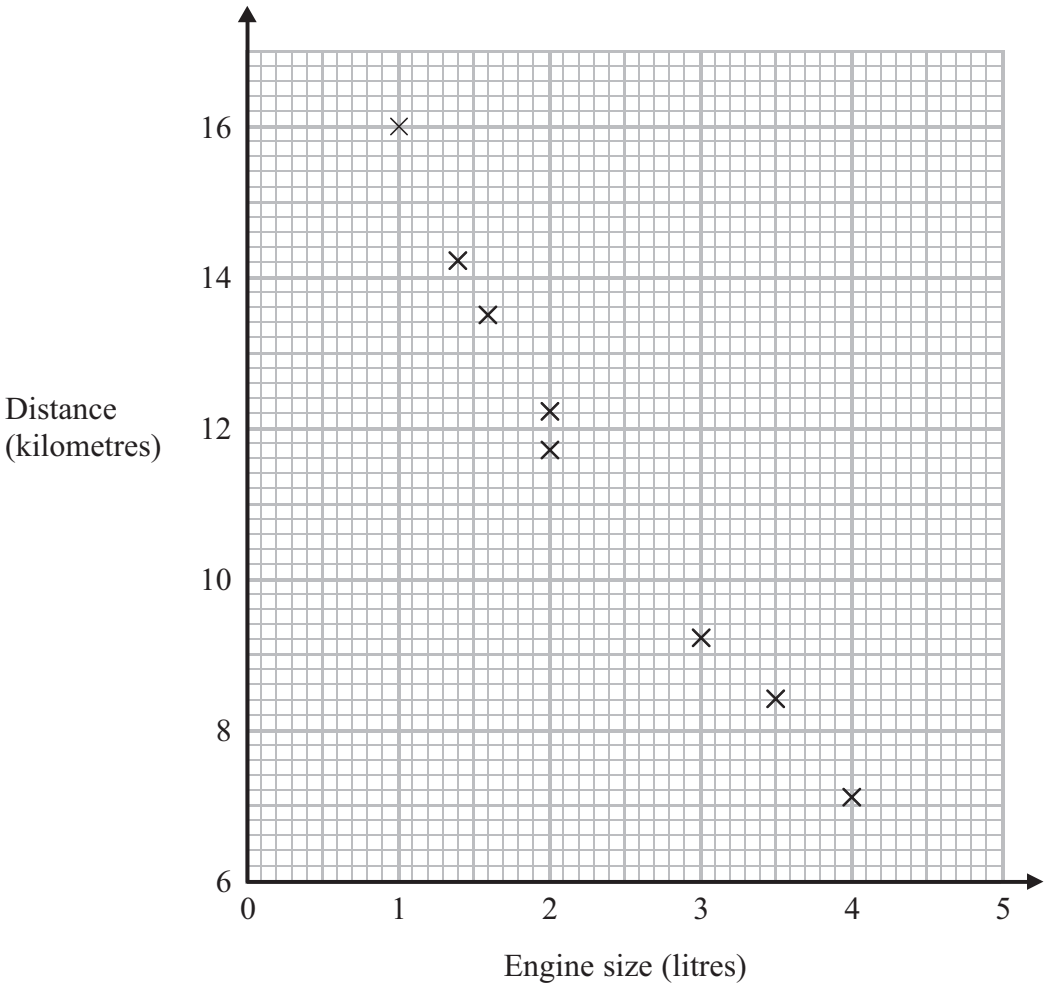
GCSE

(+ IGCSE) EXAM QUESTION PRACTICE

1. **[3 marks]**

The scatter graph shows some information about 8 cars.

For each car it shows the engine size, in litres, and the distance, in kilometres, the car travels on one litre of petrol.



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

.....

(1)

A different car of the same type has an engine size of 2.5 litres.

(b) Estimate the distance travelled on one litre of petrol by this car.

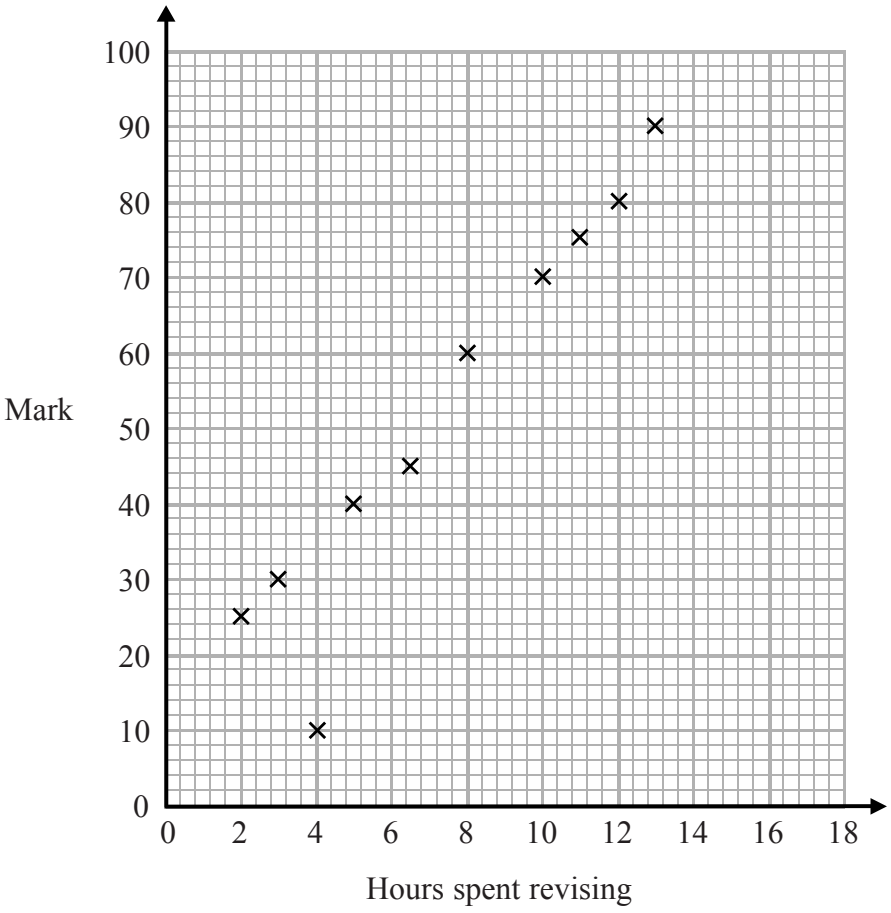
..... kilometres

(2)

2. **[3 marks]**

The scatter diagram shows information about 10 students.

For each student, it shows the number of hours spent revising and the mark the student achieved in a Spanish test.



One of the points is an outlier.

(a) (i) Write down the coordinates of the outlier.

(..... , ...)

(ii) For all the **other** points, draw the line of best fit.

(2)

The Spanish test was marked out of 100

Lucia says,

"*I can see from the graph that had I revised for 18 hours I would have got full marks.*"

(b) Comment on what Lucia says.

.....

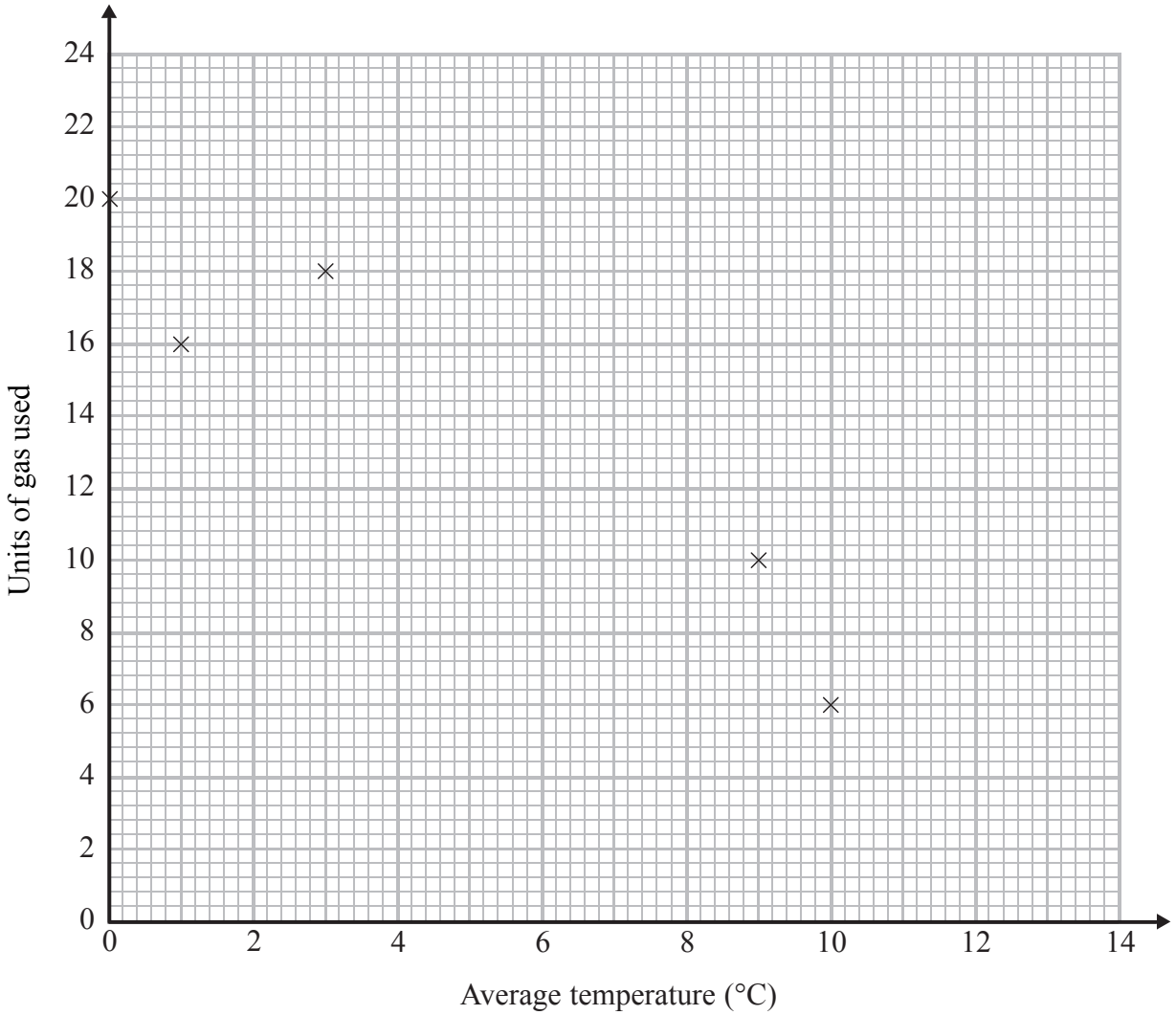
.....

(1)

3. **[4 marks]**

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 (ºC)	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.

.....

.....

(1)

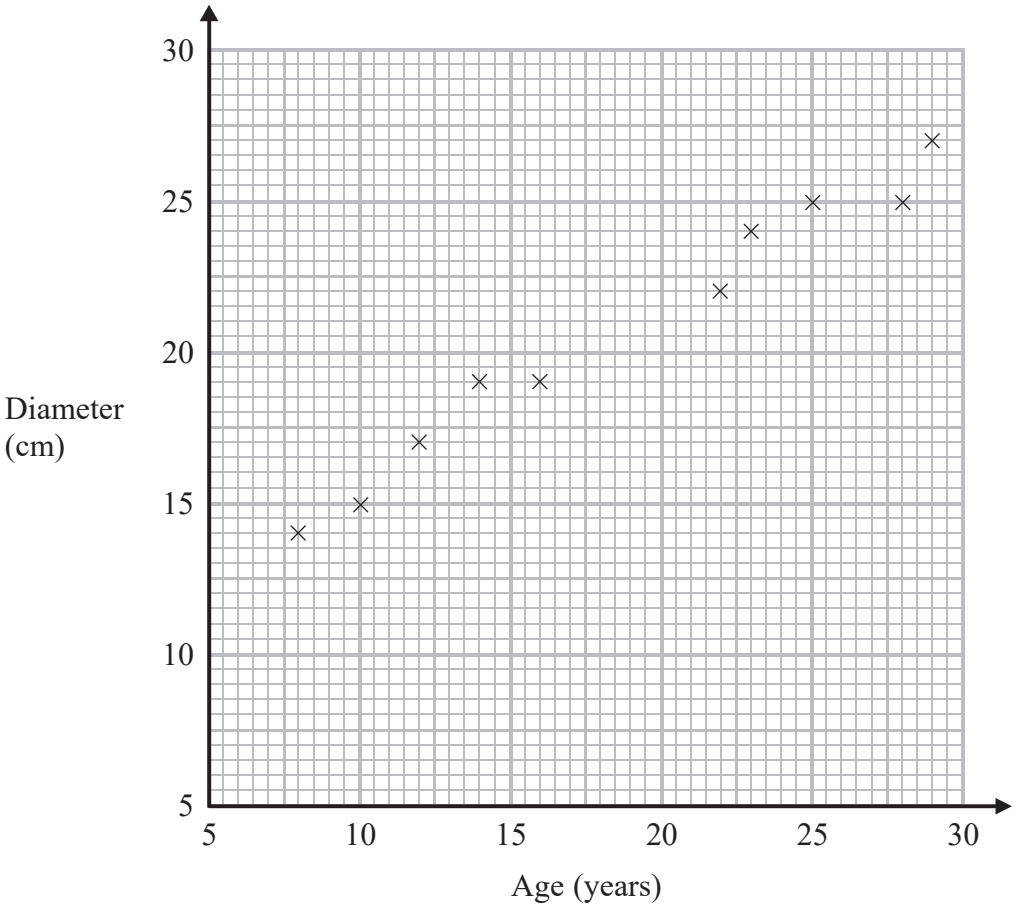
(c) Estimate the average temperature on a day when 12 units of gas are used.

..... ºC

(2)

4. **[4 marks]**

The scatter graph shows information about ten trees of the same type.
It shows the age and the diameter of the trunk of each tree.



Another tree, which is 6 years old, has a diameter of 13 cm.

(a) Plot this information on the scatter graph.

(1)

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

.....

(1)

Another tree of the same type has a trunk with diameter 21 cm.

(c) Estimate the age of this tree.

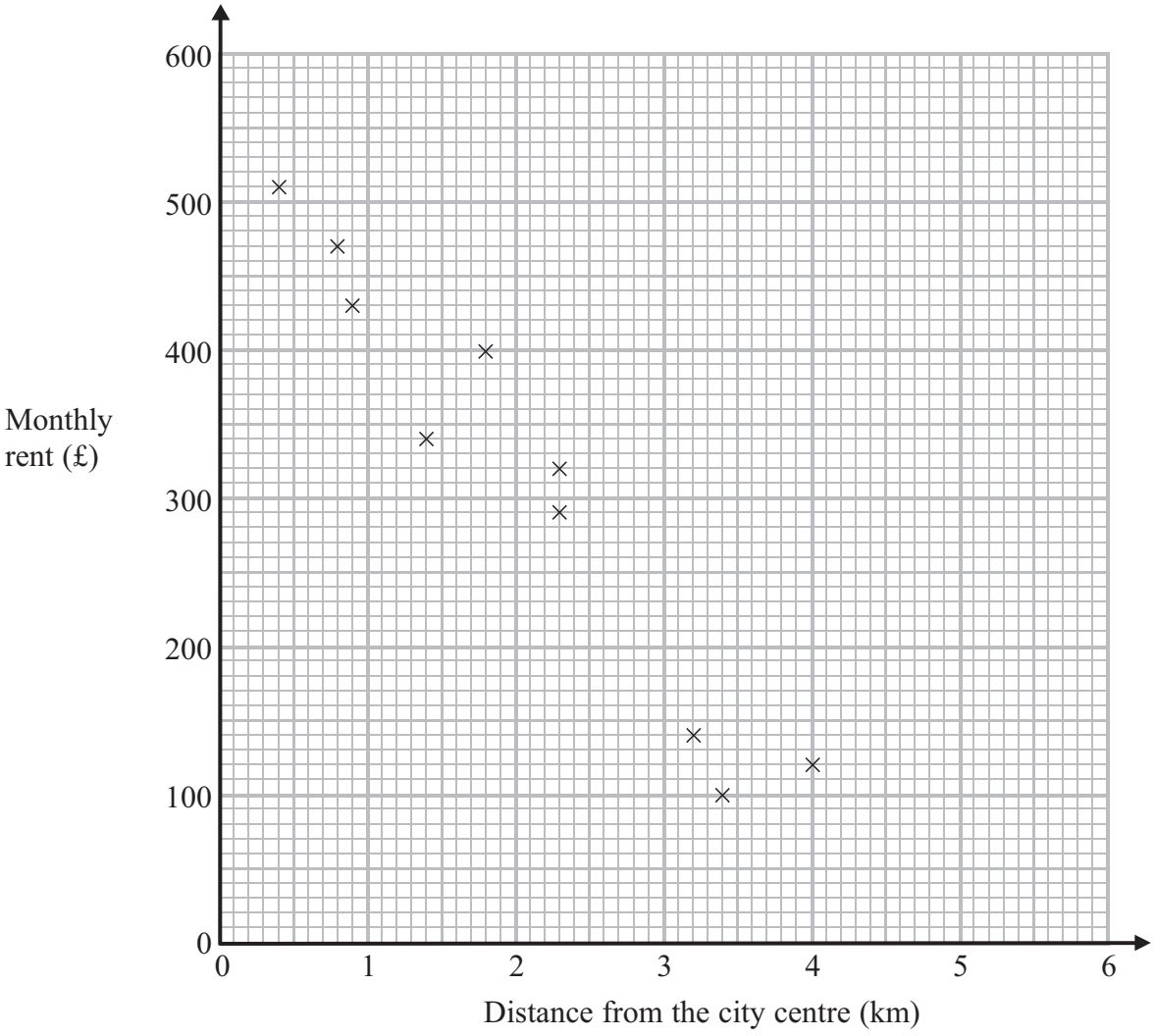
..... years

(2)

5. **[4 marks]**

The scatter graph shows information about 10 apartments in a city.

The graph shows the distance from the city centre and the monthly rent of each apartment.



The table shows the distance from the city centre and the monthly rent for two other apartments.

Distance from the city centre (km)	2	3.1
Monthly rent (£)	250	190

(a) On the scatter graph, plot the information from the table. **(1)**

(b) Describe the relationship between the distance from the city centre and the monthly rent.

.....

..... **(1)**

An apartment is 2.8 km from the city centre.

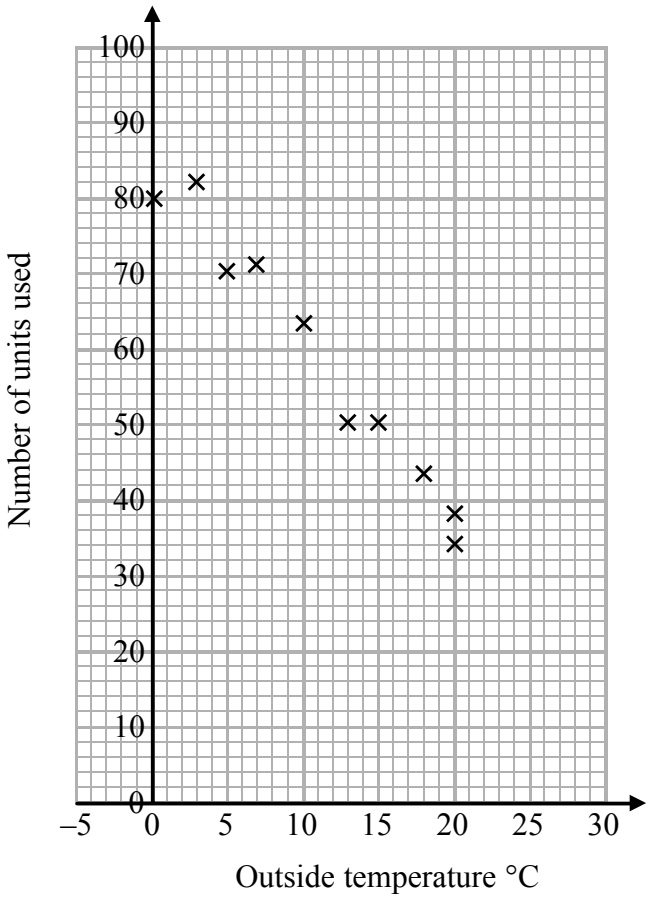
(c) Find an estimate for the monthly rent for this apartment. £ .....

(2)

6. **[4 marks]**

In a survey, the outside temperature and the number of units of electricity used for heating were recorded for ten homes.

The scatter diagram shows this information.



Molly says,

"On average the number of units of electricity used for heating decreases by 4 units for each °C increase in outside temperature."

(a) Is Molly right?
Show how you get your answer.

.....

.....

(3)

(b) You should **not** use a line of best fit to predict the number of units of electricity used for heating when the outside temperature is 30°C.

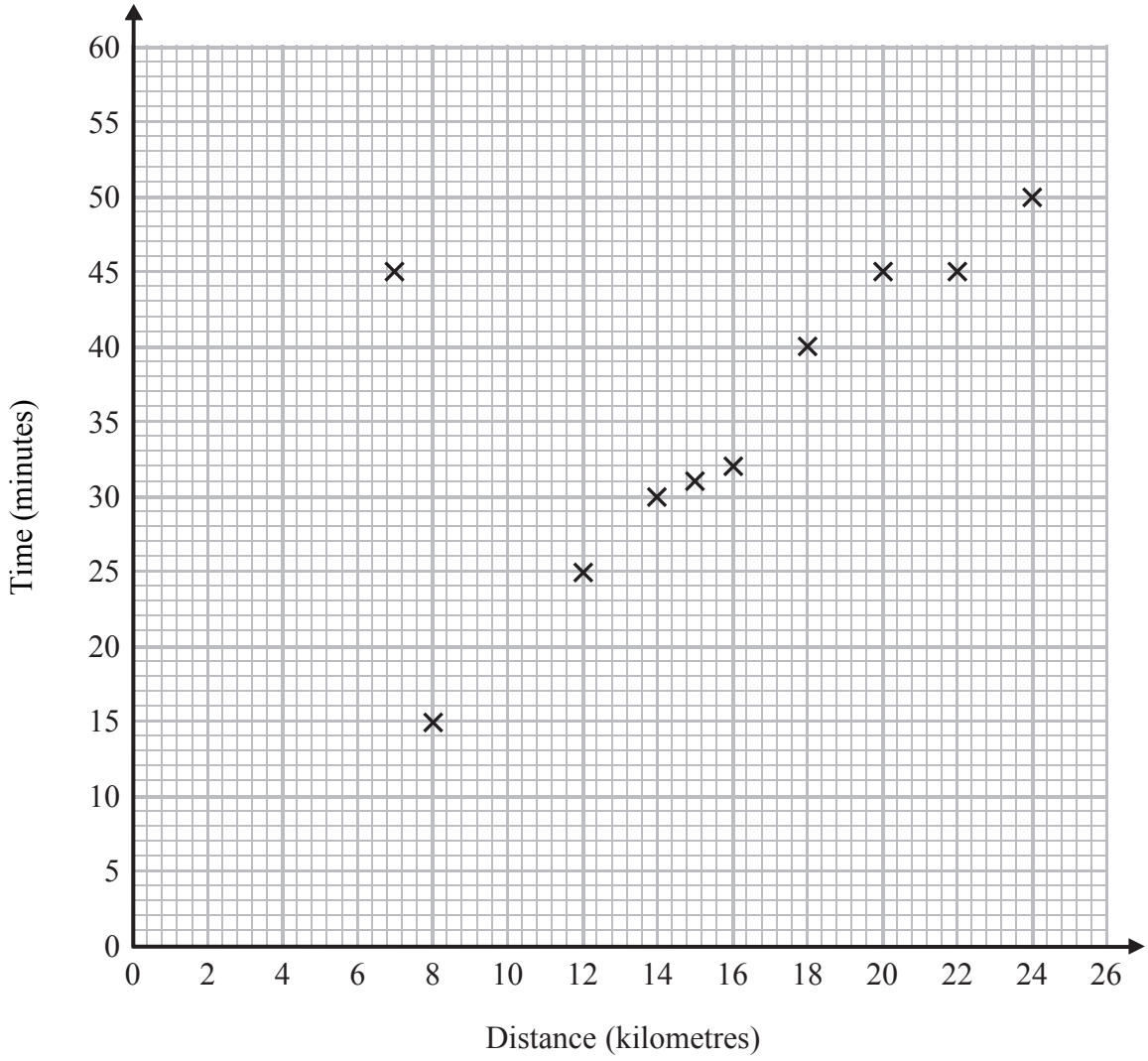
Give one reason why.

.....

(1)

7. **[4 marks]**

A delivery driver records for each delivery the distance she drives and the time taken.
The scatter graph shows this information.



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

.....

(1)

The driver has to drive a distance of 10 km for her next delivery.

(b) Estimate the time taken for this delivery.

..... minutes

(2)

During one of the deliveries, the driver was delayed by road works.

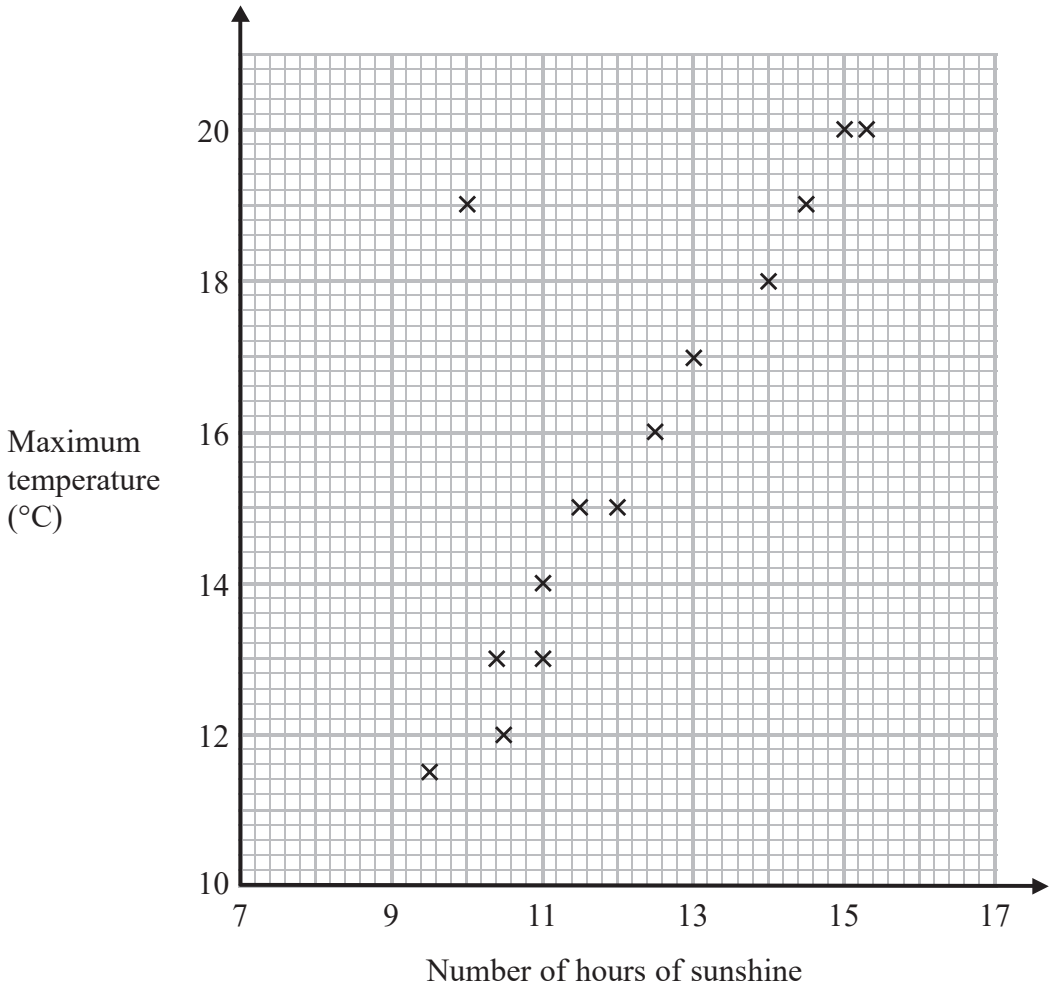
(c) Using the graph write down the time taken for this delivery.

..... minutes

(1)

8. **[3 marks]**

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 the outlier.

(..... , ...)

(1)

(b) Describe **two different** possible reasons for this outlier.

1 .....

.....

2 .....

.....

(2)