

Name:

Exam Style Questions

Scatter Graphs



Equipment needed: Pencil, Ruler, Pen, Calculator

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Videos 165 to 168



Answers and Video Solutions



1. Eight students sat a music test.

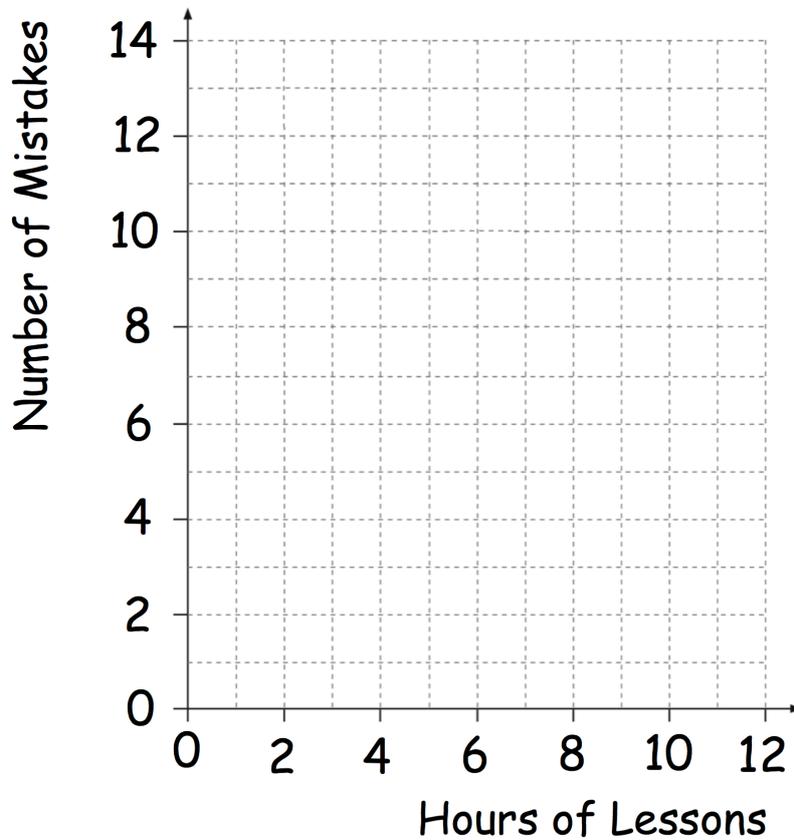


The table shows information about how many hours of lessons they had and the number of mistakes made in the test.

Hours of lessons	8	2	5	3	10	7	11	6
Number of mistakes	8	12	7	9	2	6	1	5

(a) Show this information on the scatter graph below.

(2)



A student is awarded a prize if they make less than 3 mistakes.

(b) How many students are awarded a prize?

.....
(1)

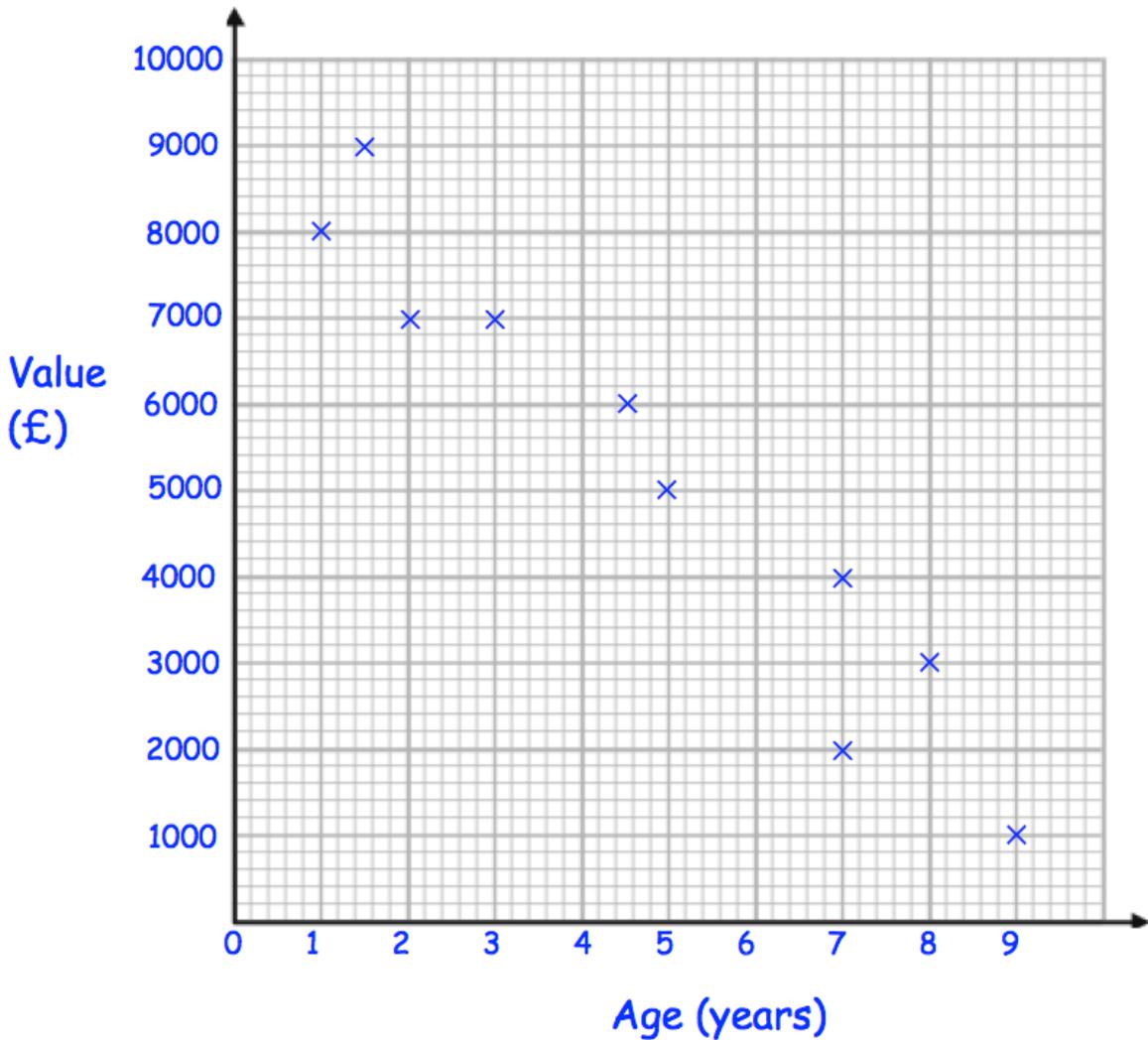
(c) Complete the sentence below.

Generally the more hours of lessons, the mistakes are made.

(1)

2.

The value of cars in a used car garage are recorded below.
The scatter graph shows this information.



Another car arrives at the garage.
It is 4 years old and worth £5000.

(a) Show this information on the scatter graph. (1)

(b) Describe the correlation between the value of the car and the age of the car.

.....
(1)

The next car that arrives is 6 years old.

(c) Estimate the value of the car.

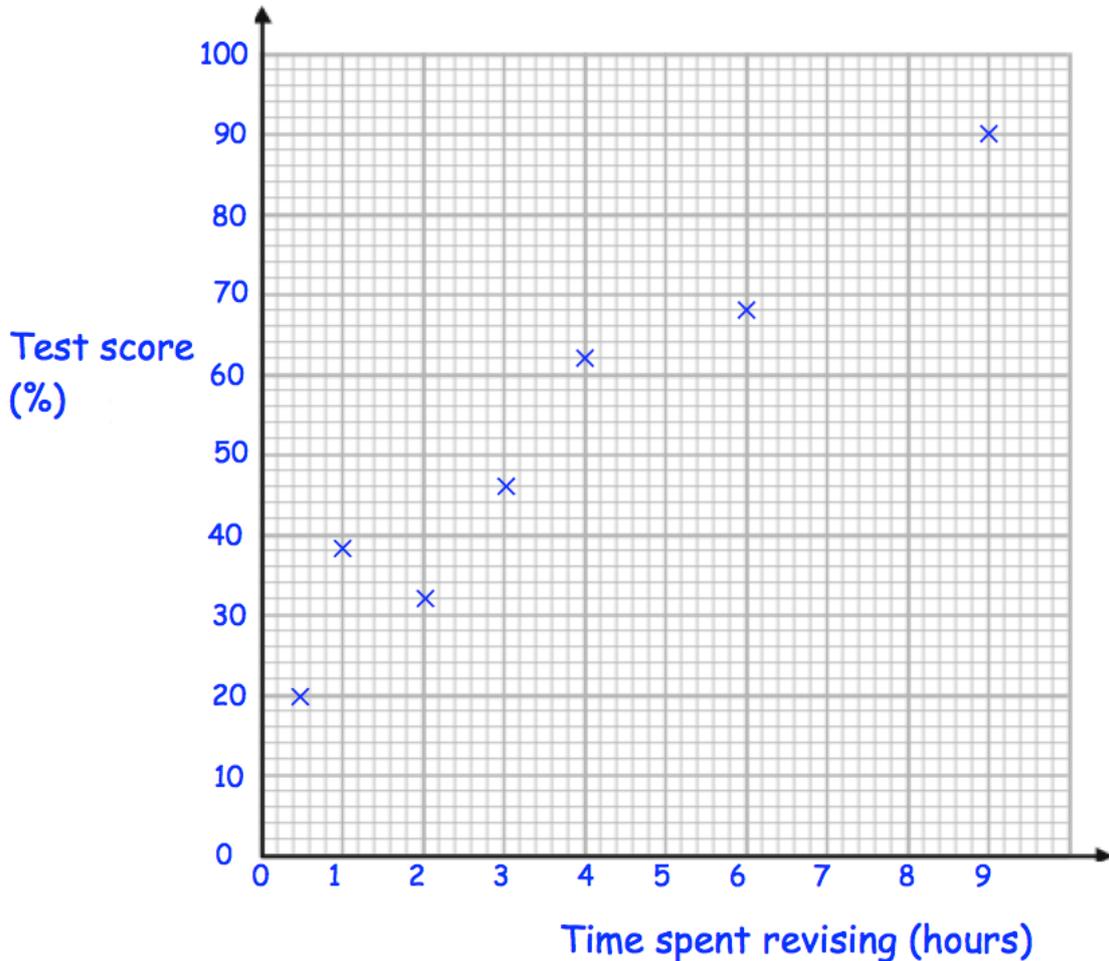
£.....
(2)

3. The table shows the time spent revising and the test scores of ten students.



Time spent revising (hours)	9	0.5	1	4	6	2	3	7	5	8
Test result (%)	90	20	38	62	68	32	46	70	60	86

The first seven points have been plotted on this scatter diagram.



(a) Complete the scatter diagram. (1)

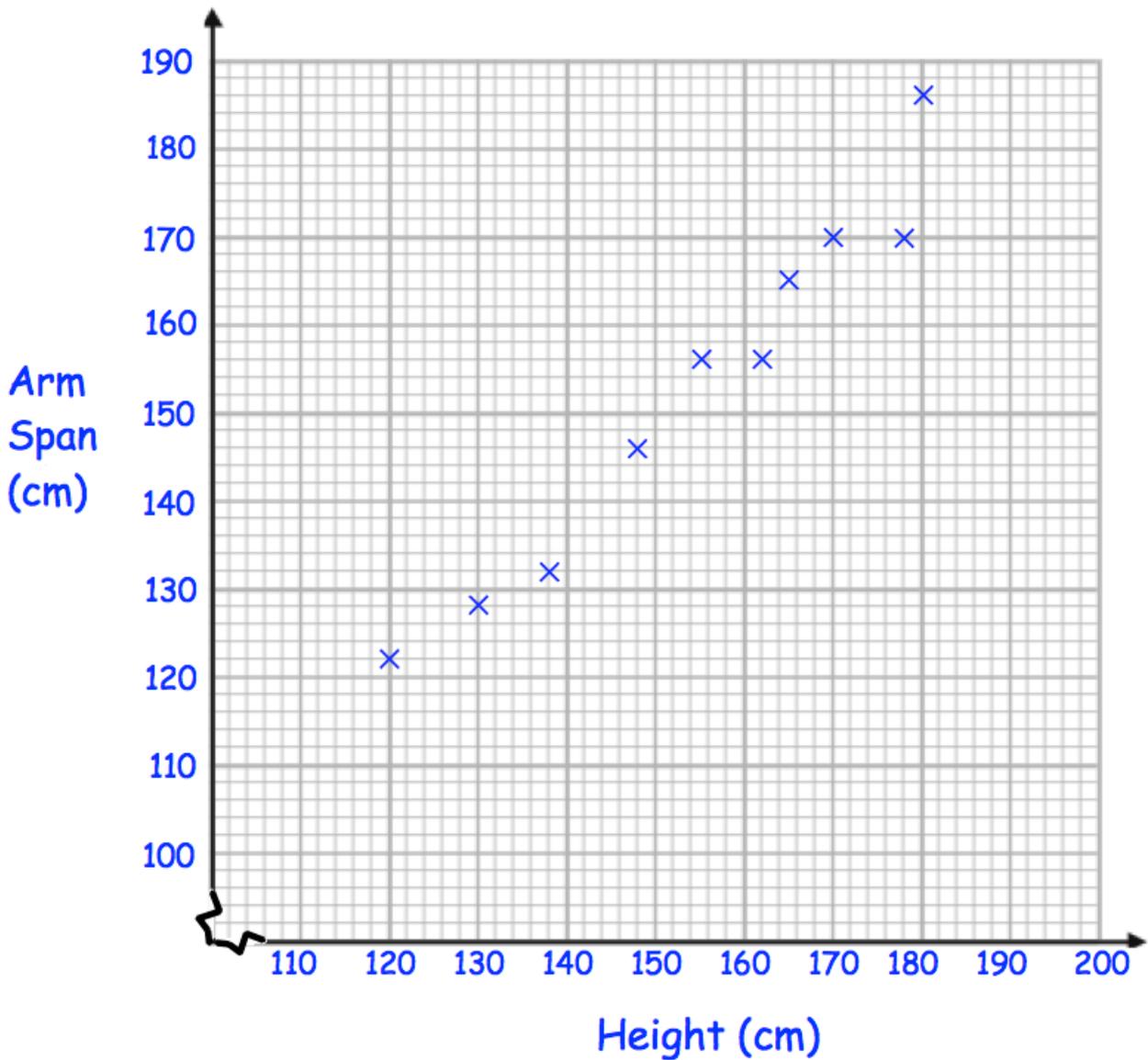
(b) Describe the relationship shown in the scatter diagram.

 (1)

(c) Draw a line of best fit on your scatter diagram. (1)

(d) Another student has spent 4.5 hours revising.
 Use your line of best fit to estimate their test result.
% (1)

4. The scatter graph shows information about the heights and arm spans of ten students in a school.



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

.....
(1)

Another student has a height of 150cm.

- (b) Estimate the arm span of this student.

.....cm
(2)

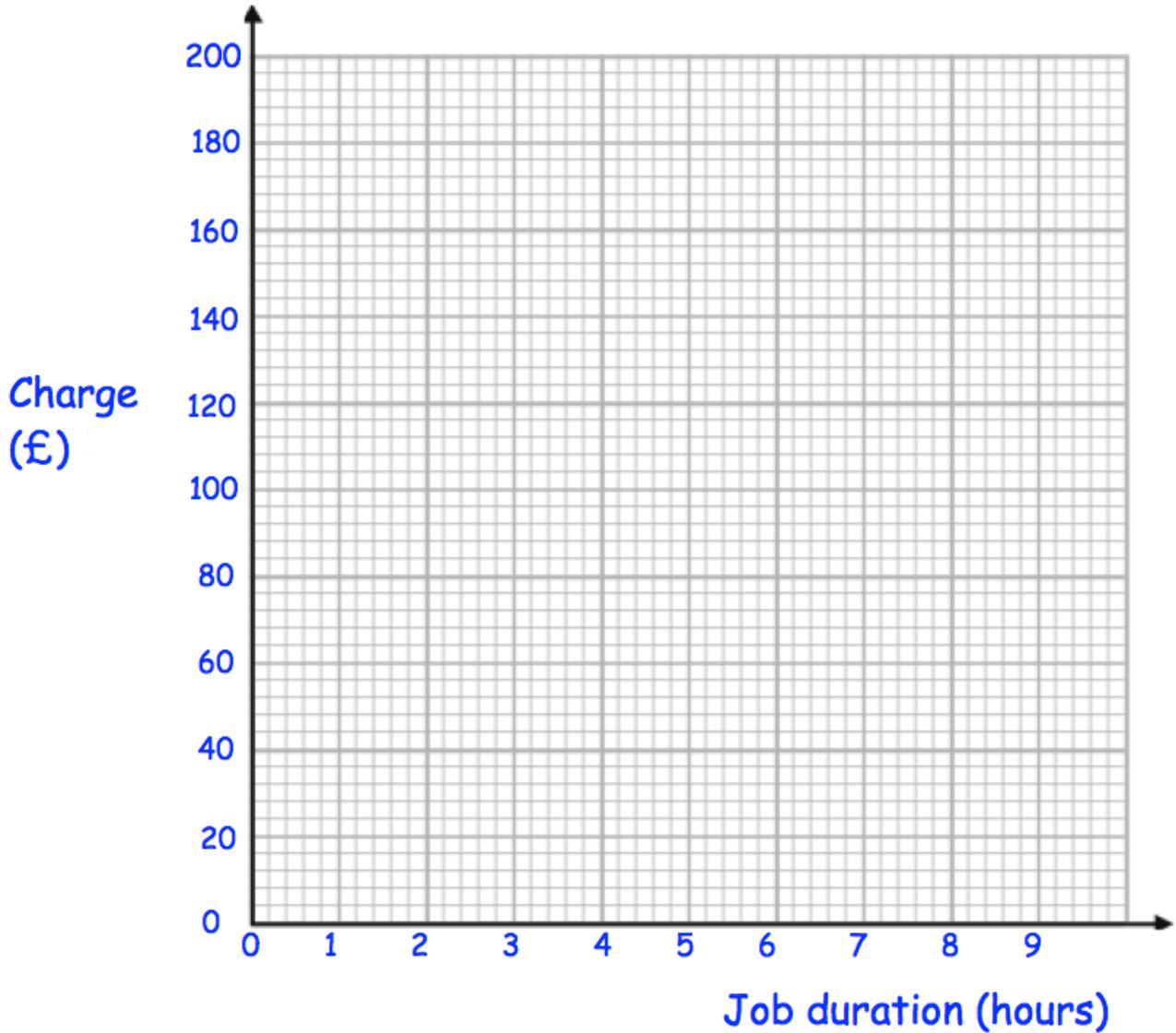
5. The table shows the charge (£) by plumbers for jobs of different duration (hours).



Job duration (hours)	1	2	3	3	5	6	6
Charge (£)	60	80	104	116	128	140	160

(a) Plot the data on the scatter graph below.

(2)



(b) Describe the correlation.

.....

.....

(1)

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

(1)

(d) Use your line of best fit to estimate the charge for a 4 hour job.

£.....

(1)

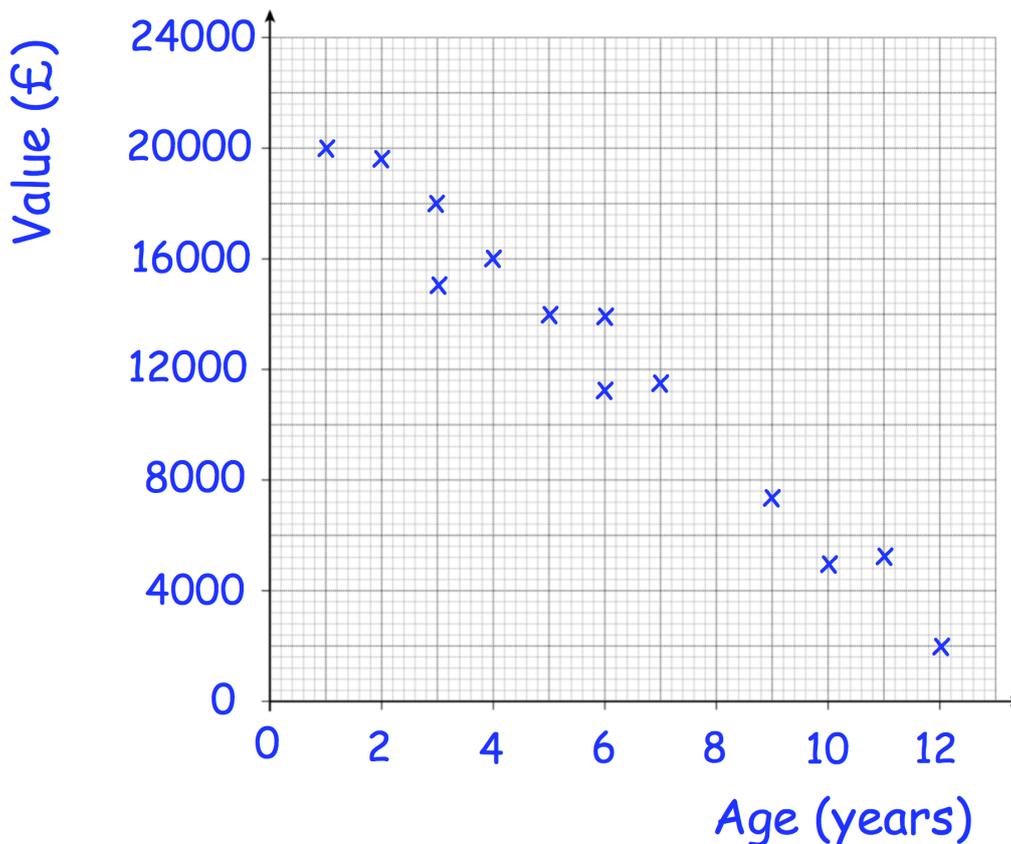
(e) Explain why it may **not** be appropriate to use your line of best fit to estimate the charge for a job lasting 12 hours.

.....

.....

(1)

6. The scatter graph shows the age and value of some cars.



Using the scatter graph, find an estimate for the value of an 8 year old car.

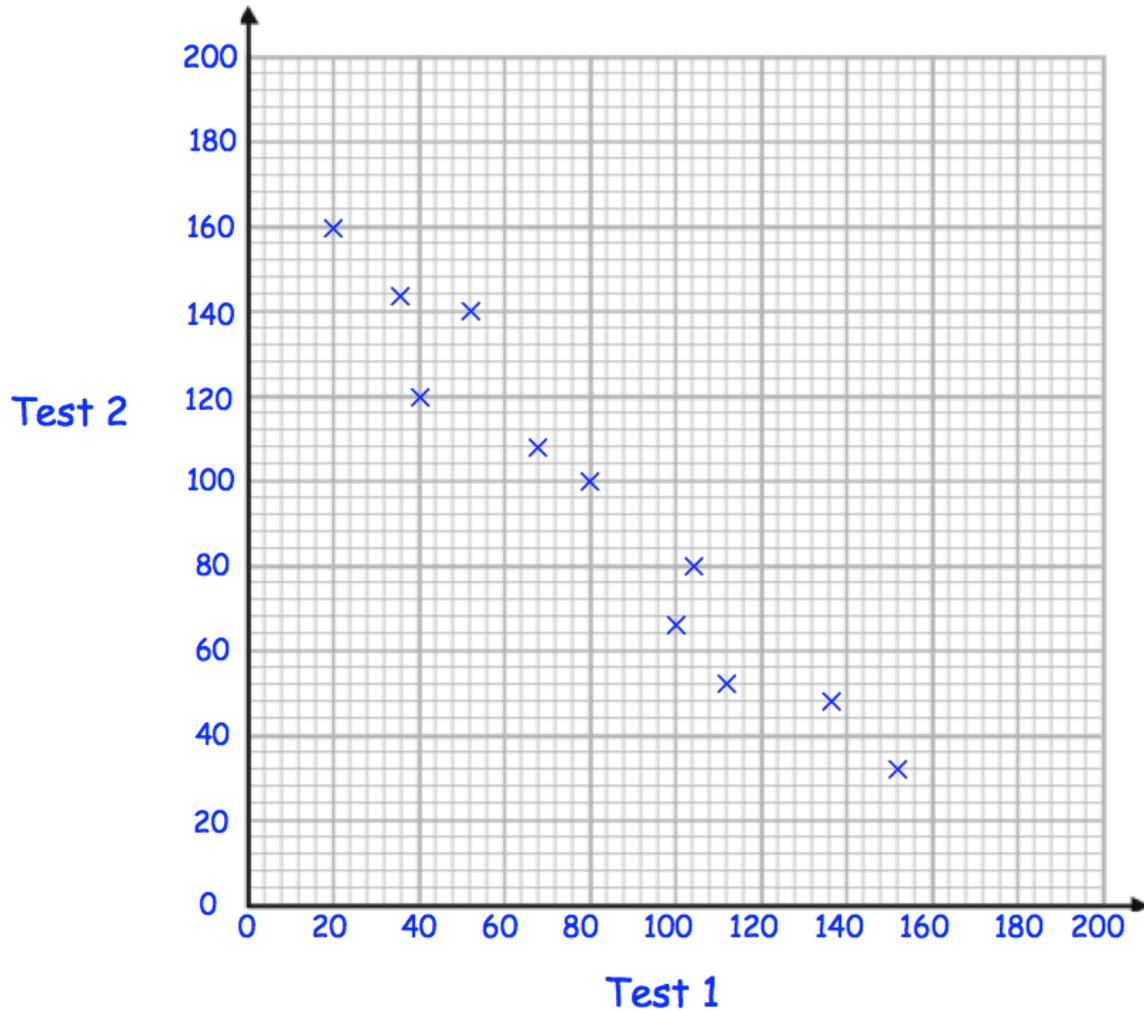
£.....

(2)

7. Some rugby players take two tests, one measuring speed and the other measuring strength. Each test is marked out of 200.



The scatter graph compares the results.



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

.....
(1)

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

(1)

Brian scores 40 in Test 2.

- (c) Estimate his score in Test 1.

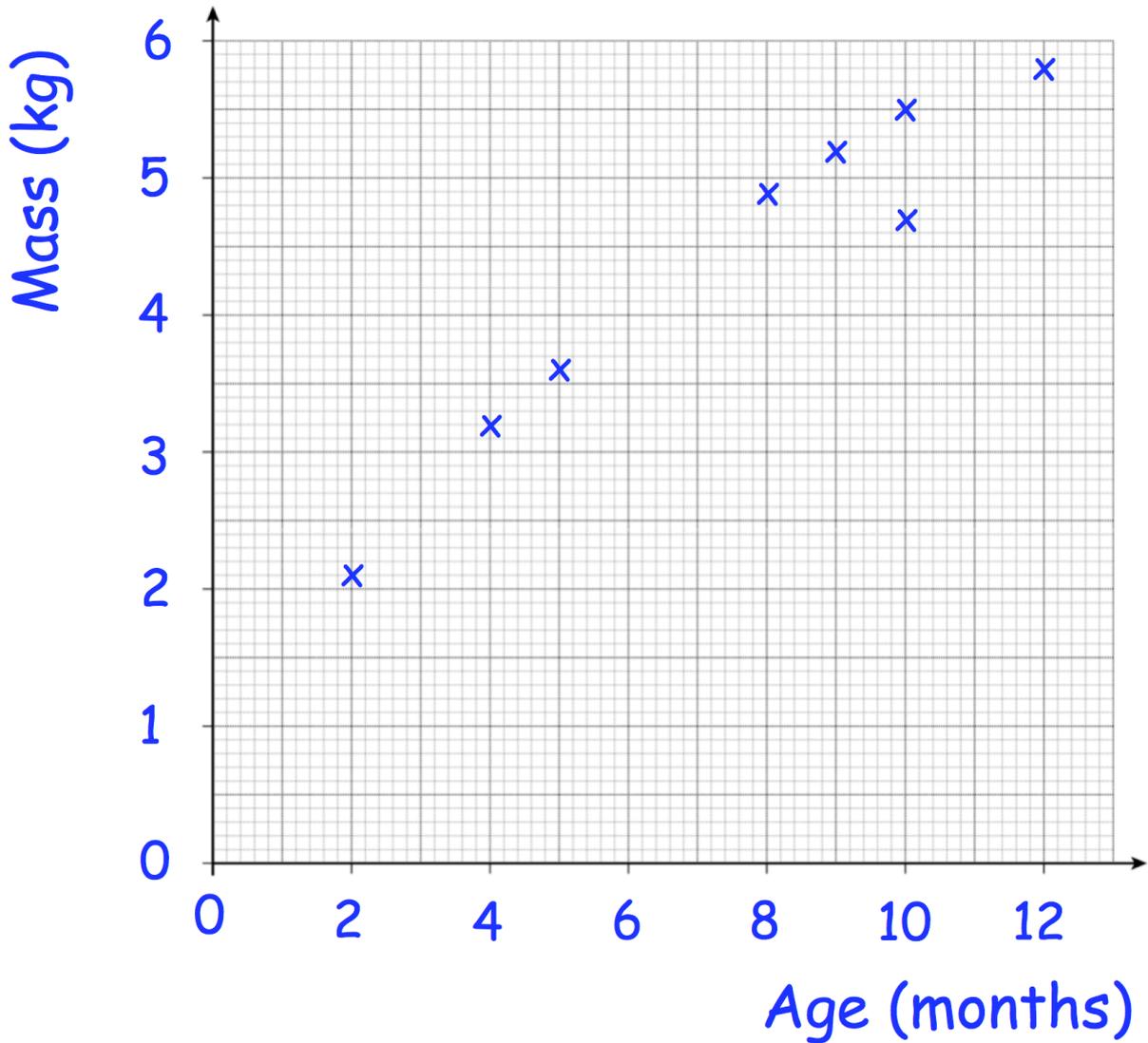
.....
(1)

8. Samia records the ages and masses of 10 Jack Russell dogs.



Dog	A	B	C	D	E	F	G	H	I	J
Age (months)	4	10	12	5	8	10	2	9	6	8
Mass (kg)	3.2	4.7	5.8	3.6	4.9	5.5	2.1	5.2	4.2	4.4

The points for the first eight dogs have been plotted on the scatter graph below.



(a) Plot the points for the remaining two dogs.

(1)

An owner claims his Jack Russell is 4 months old and weighs 6kg

(b) Does the scatter graph support his statement?
Explain your answer.

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

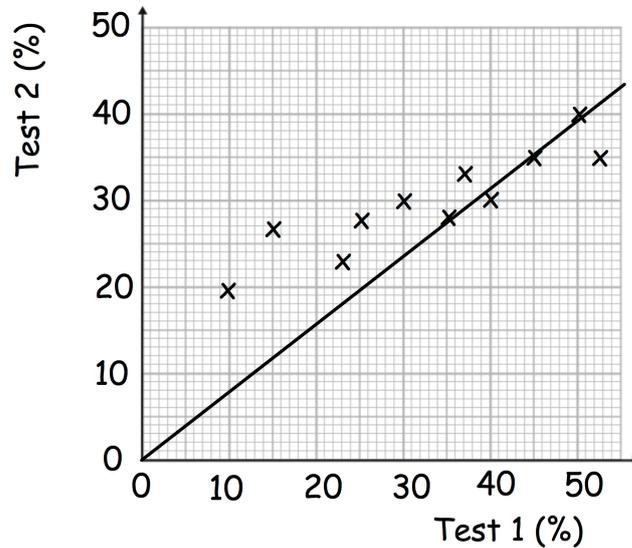
(c) Explain why the scatter graph should not be used to estimate the mass of a 8 month old Poodle.

.....
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(1)

9. A class sits test 1 and test 2.



Arthur plots a scatter graph and draws a line of best fit.



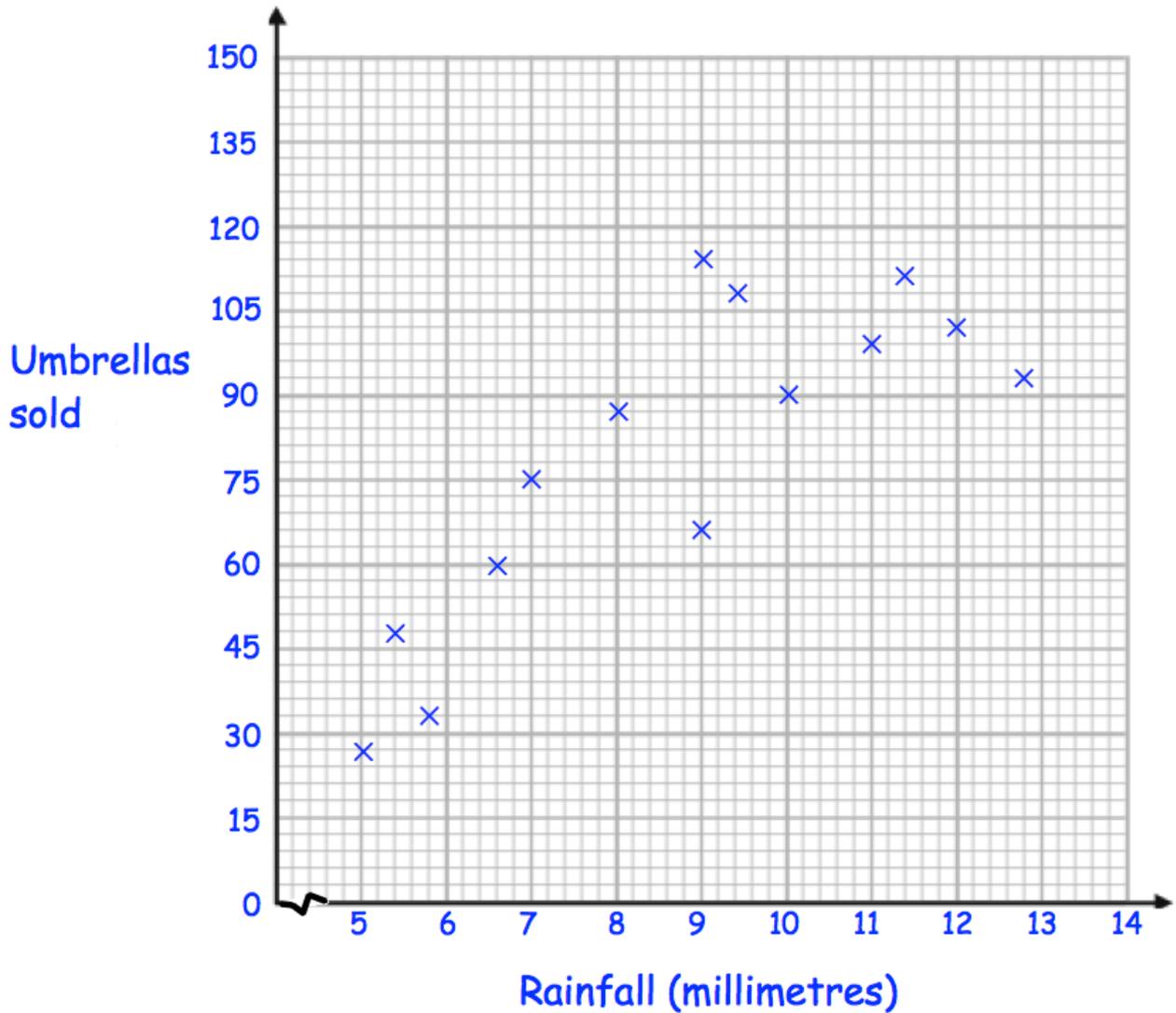
Give a criticism of Arthur's line of best fit.

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

10. A shop sells umbrellas.



The scatter graph shows information about the number of umbrellas sold each week and the rainfall that week, in millimetres.



(a) Describe the relationship between the rainfall and umbrellas sold.

.....
.....

(1)

(b) What is the most number of umbrellas sold in one week?

.....
(1)

(c) What is the greatest amount of rainfall in one week?

.....
(1)

(d) In how many weeks did the shop sell over 105 umbrellas?

.....
(1)

In another week, there was 6mm of rain.

(e) Estimate the number of umbrellas sold.

.....
(2)

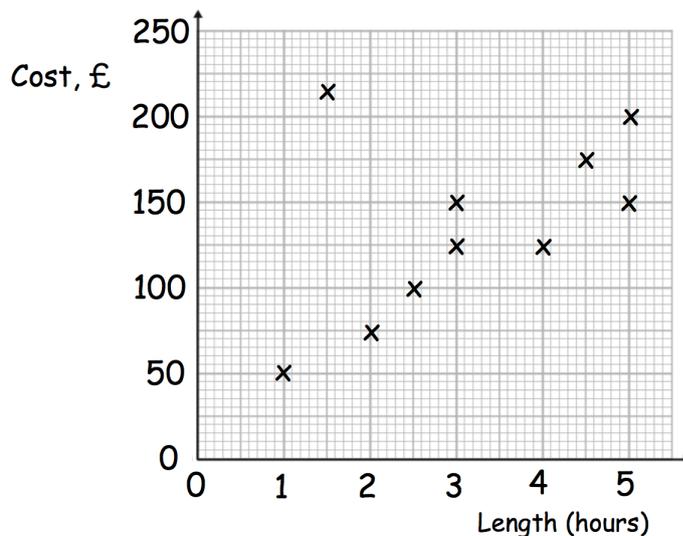
(f) Explain why it may **not** be appropriate to use your line of best fit to estimate the number of umbrellas sold in a week with 25mm of rainfall.

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

11. Mr Hamill is a plumber.



The scatter graph shows the cost and length of his last 10 jobs.



Circle the outlier.

(1)

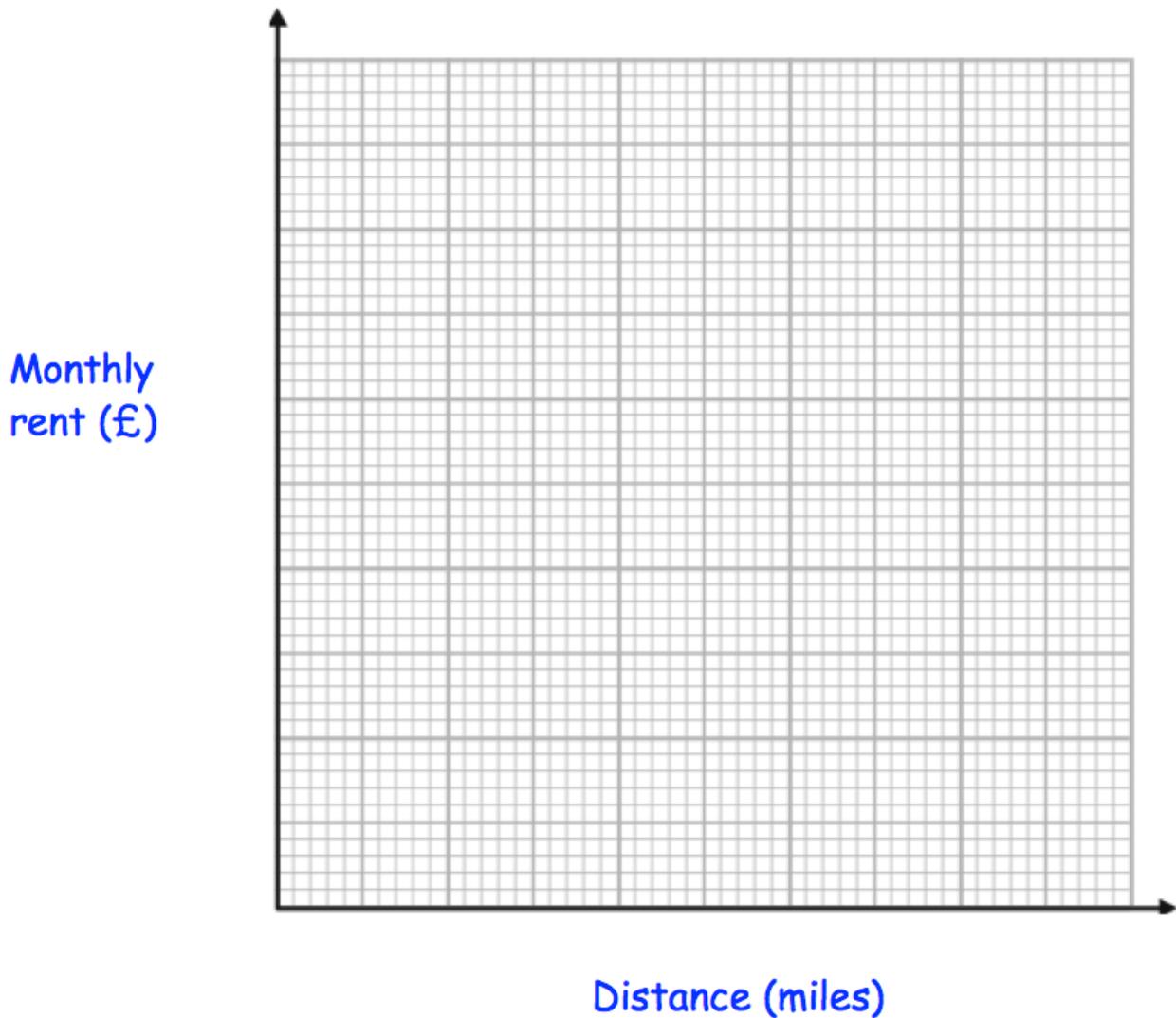
12. The table below shows information about the monthly rent of an apartment and the distance of the apartment from a city centre, in miles.



Distance (miles)	3.2	1.5	5.7	8.2	0.7	0.9	4.4	5.8	9.3	0.4
Monthly rent (£)	340	420	250	190	500	470	300	260	170	510

- (a) Plot the data on the scatter graph below.
Clearly label your axes.

(3)



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

.....

.....

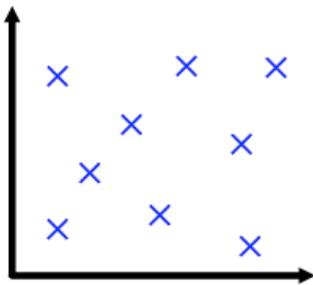
(1)

An apartment is 2.2 miles from the city centre.

(c) Find an estimate for the monthly rent

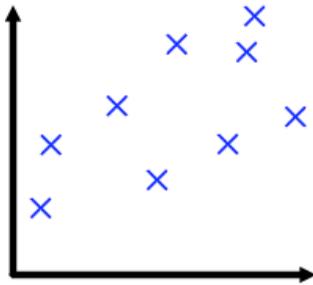
£.....
(2)

13. Match each scatter graph to the best description of the type and strength of correlation.



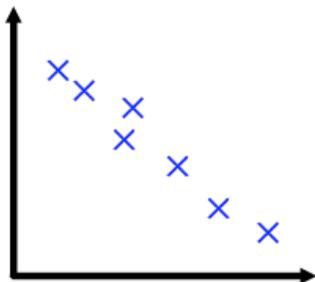
Strong positive correlation

Weak positive correlation



No correlation

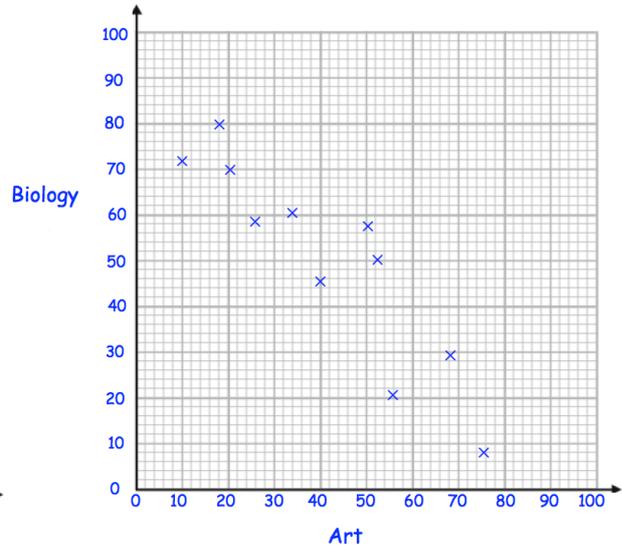
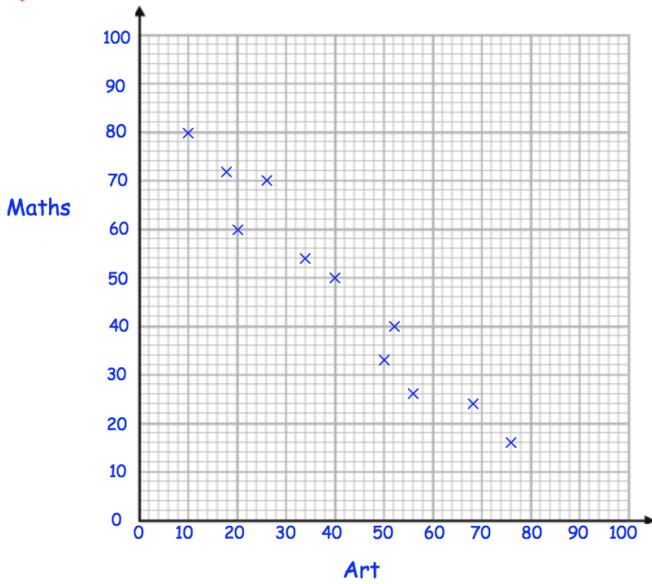
Weak negative correlation



Strong negative correlation

(2)

14. Eleven students sit examinations in Art, Maths and Biology.
 Information about the results are shown in the scatter graphs below.



(a) Describe the correlation between the maths scores and art scores.

.....
(1)

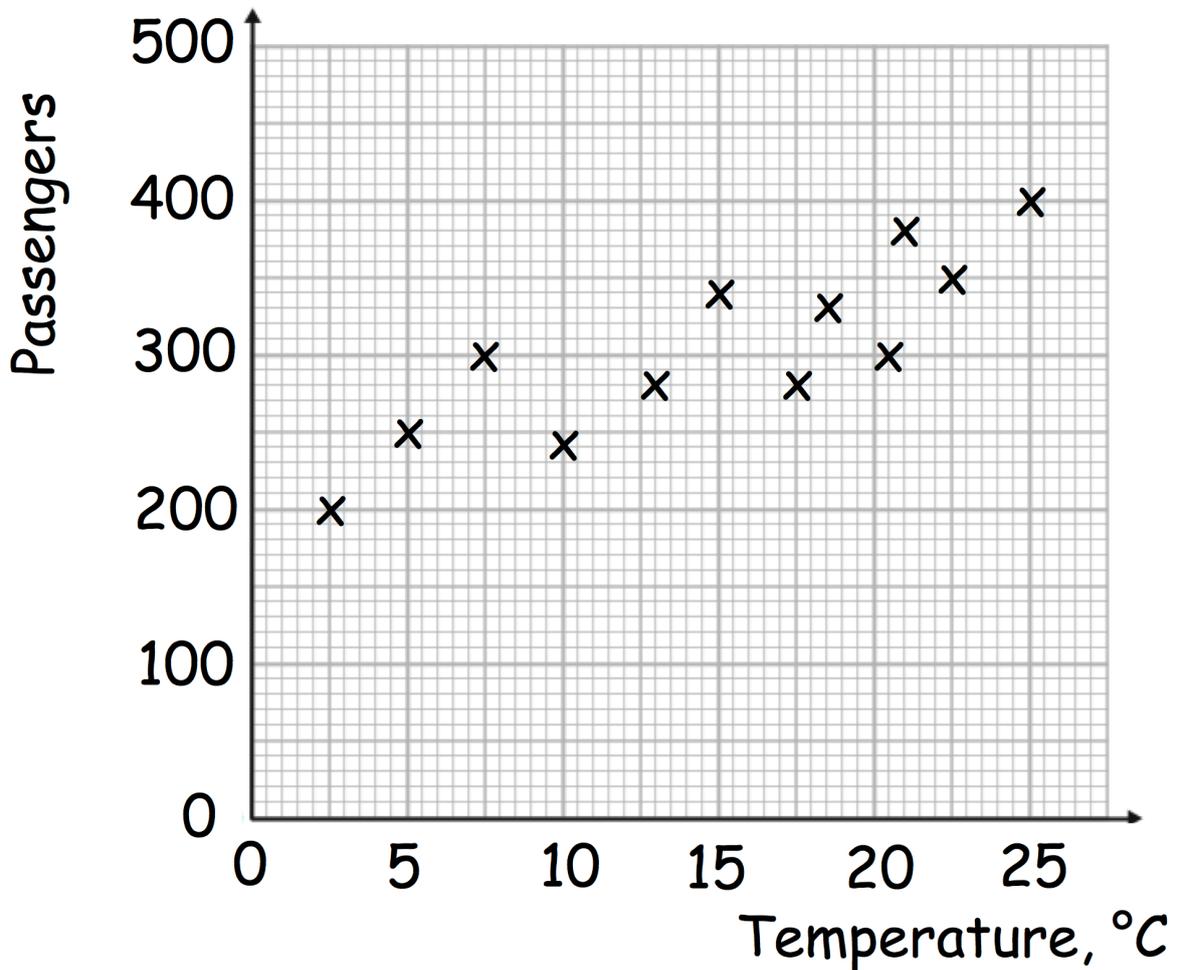
(b) Describe the correlation between the biology scores and art scores.

.....
(1)

(c) Describe the correlation between the biology scores and maths scores.

.....
(1)

15. The scatter graph shows information about the temperature and the number of passengers on 12 train journeys between a city and a seaside town.



Jessica was the driver for one of the 12 journeys.

The temperature was 21°C

On that journey adult passengers : child passengers = 13 : 7

Work out how many of the passengers on that journey were children.

.....
(4)