Name:

Exam Style Questions

Scatter Graphs

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

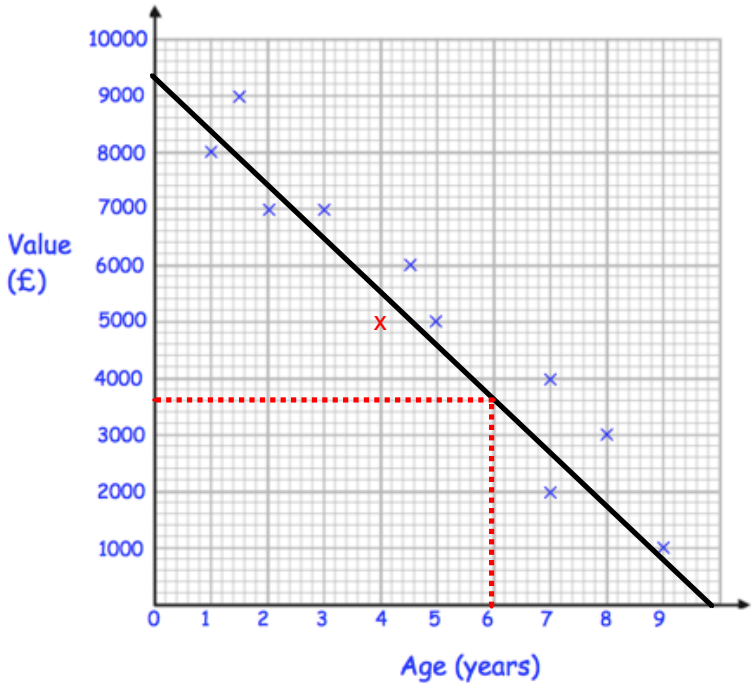
1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

Video 165
Video 166
Video 167
Video 168

1. 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.

negative correlation

(1)

The next car that arrives is 6 years old.

(c) Estimate the value of the car.

this may vary slightly based on your line of best fit.

3600

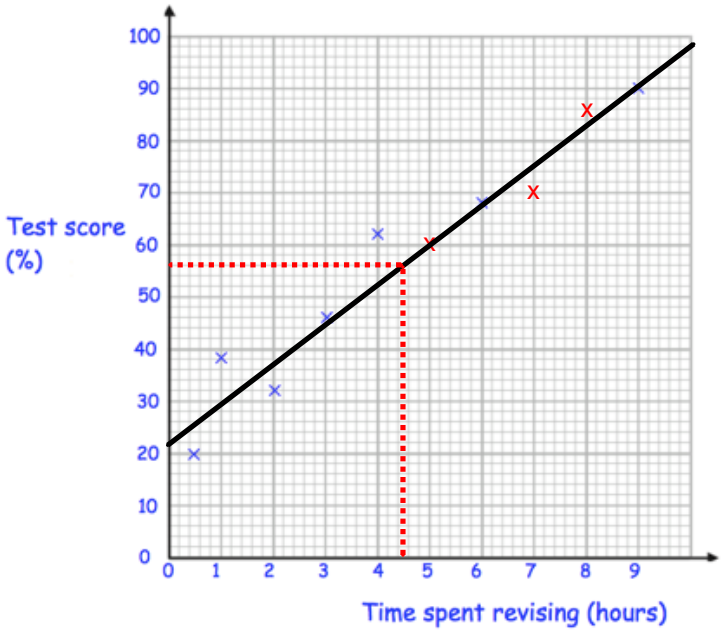
£.....

(2)

2. 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.

As the time spent revising increases, so does the test score. (positive correlation)

(1)

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

(1)

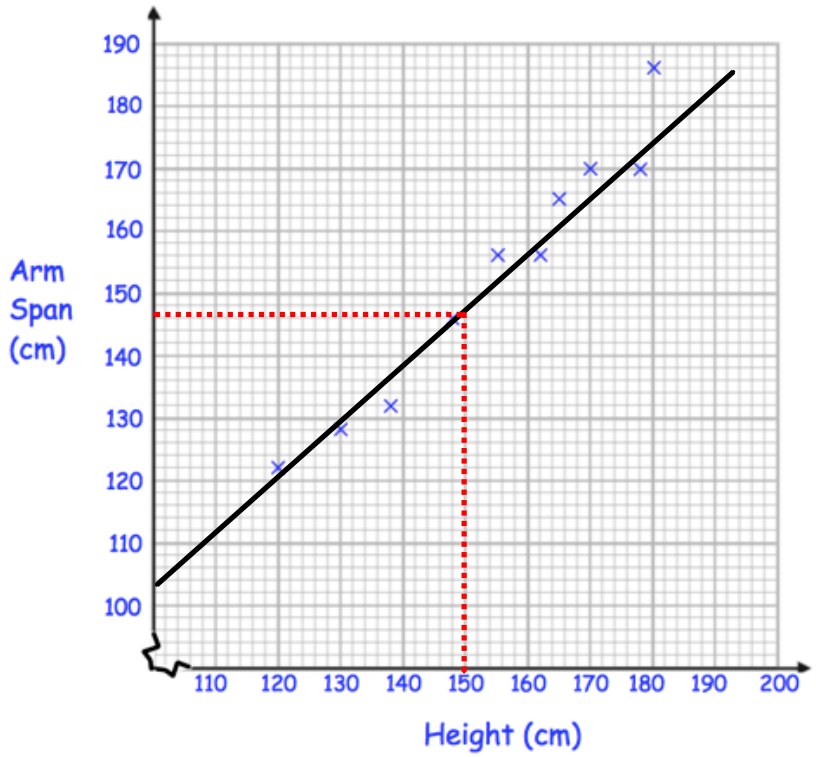
(d) Another student has spent 4.5 hours revising.
Use your line of best fit to estimate their test result.

this may vary slightly based on your line of best fit.

56 ....%

(1)

3. 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?

positive

(1)

Another student has a height of 150cm.

(b) Estimate the arm span of this student.

this may vary slightly based on your line of best fit.

147 cm

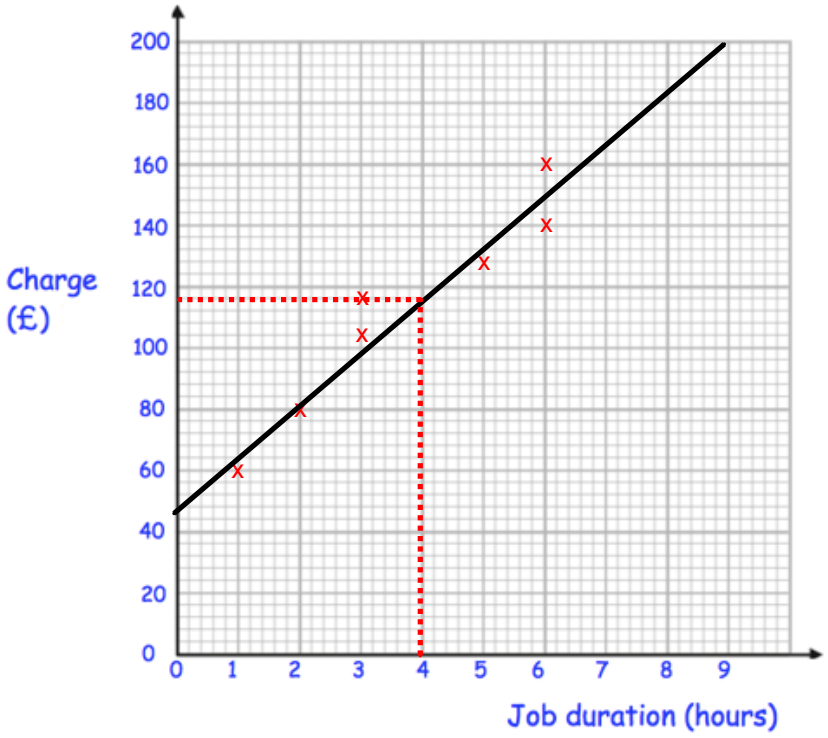
(2)

4. 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.

There is a positive correlation, which means as the job duration increases, so does the charge.

(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.

this may vary slightly based on your line of best fit.

£ 116

(1)

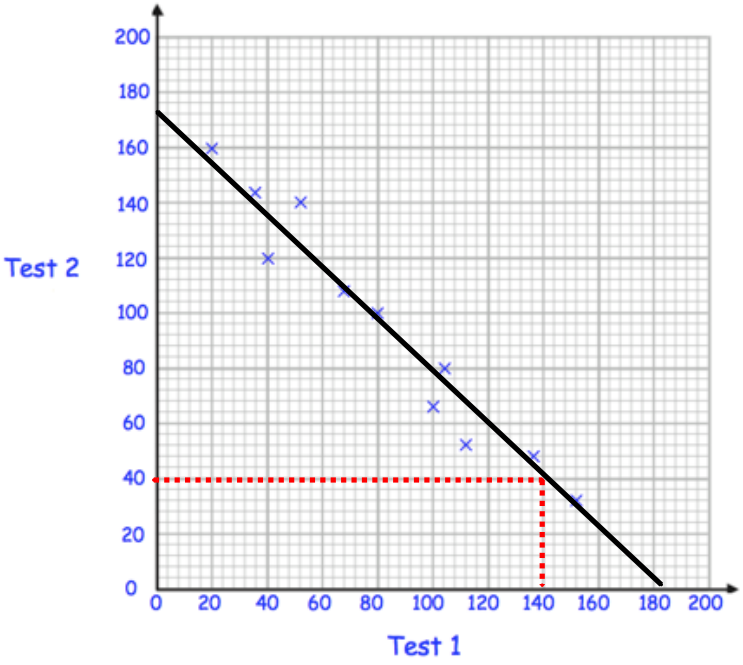
(e) Explain why it may **not** be appropriate to use your line of best fit to estimate the charge for a job lasting 12 hours.

It is beyond the range of the data. It is extrapolation, therefore unreliable.

(1)

5. 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 coordinate does this scatter graph show?

negative

.....

(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.

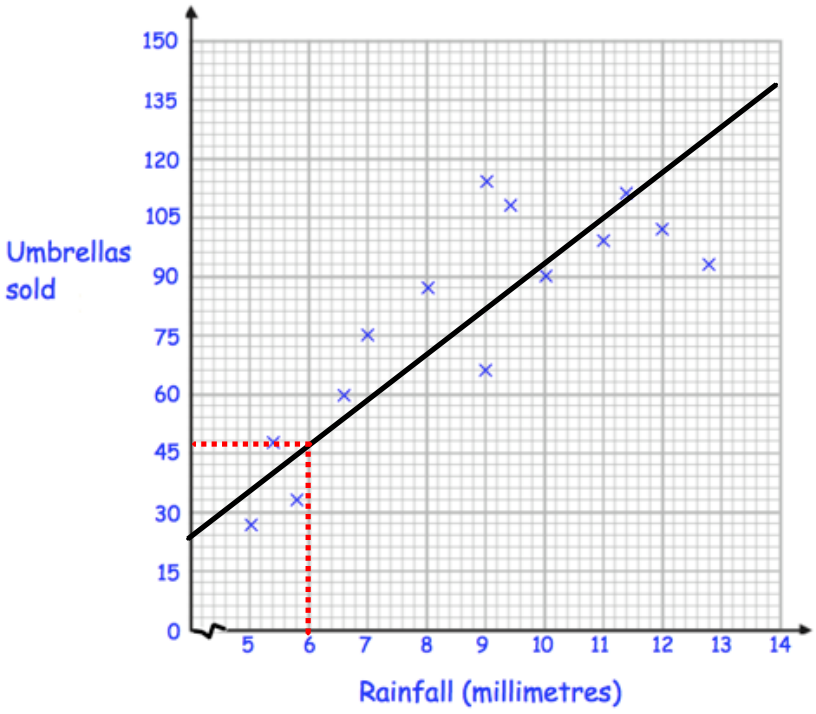
this may vary slightly based on your line of best fit.

£ 140

(1)

6. 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.

As the rainfall increases, the number of umbrellas sold increases.

(1)

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

114

(1)

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

12.8mm

(1)

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

3

(1)

In another week, there was 6mm of rain.

(e) Estimate the number of umbrellas sold.

48

this may vary slightly based on your line of best fit.

(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.

It is beyond the range of the data. It is extrapolation, therefore unreliable.

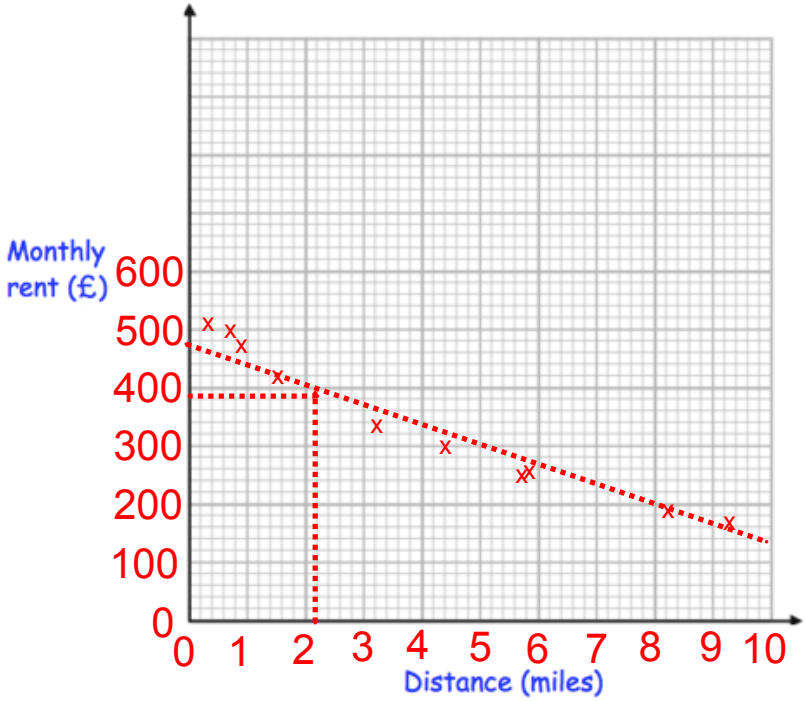
(1)

7. 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.

As the distance from the city centre increases, the monthly rent decreases. It is a negative correlation.

(1)

An apartment is 2.2 miles from the city centre.

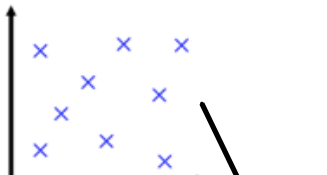
(c) Find an estimate for the monthly rent

this may vary slightly based on your line of best fit.

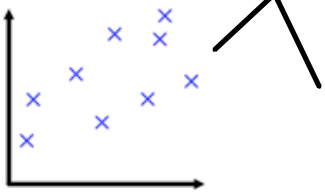
£ 380

(2)

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



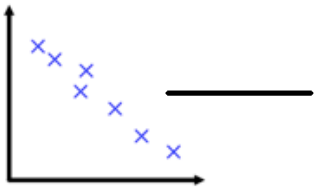
Strong positive correlation



Weak positive correlation

No correlation

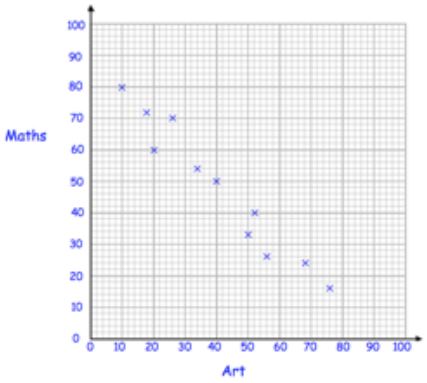
Weak negative correlation

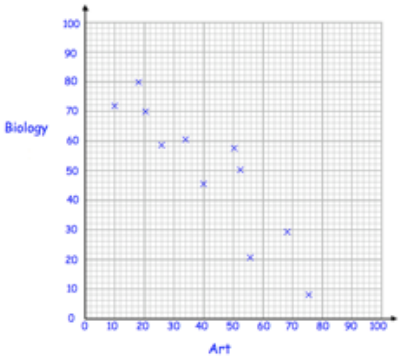


Strong negative correlation

(2)

9. 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.

negative correlation

(1)

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

negative correlation

(1)

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

positive correlation

(1)