



- 1 The table shows the height and shoe size of some students.

Student	Height (cm)	Shoe size
Anna	150	4
Ben	162	6
Chen	171	8
Dina	158	5

Anna draws a scatter graph with height on the horizontal axis and shoe size on the vertical axis.

Write down the coordinates of the points she should plot for Ben and for Chen.

(2 marks)

height first, then shoe size

Ben (162, 6)

Chen (171, 8)

- 2 Write down the type of correlation you would expect to see in a scatter graph of each of the following.

- The daily temperature and the number of ice creams sold at a kiosk.
- The age of a car and its value.

(2 marks)

As temperature rises, more ice creams are sold, so positive correlation

As a car gets older, its value falls, so negative correlation

- 3 A scatter graph shows the maths score (horizontal axis) and the science score (vertical axis) of some students. One point on the graph is at (35, 40).

Write down what this point tells you about this student.

(2 marks)

(35, 40) = (maths, science)

maths 35, science 40

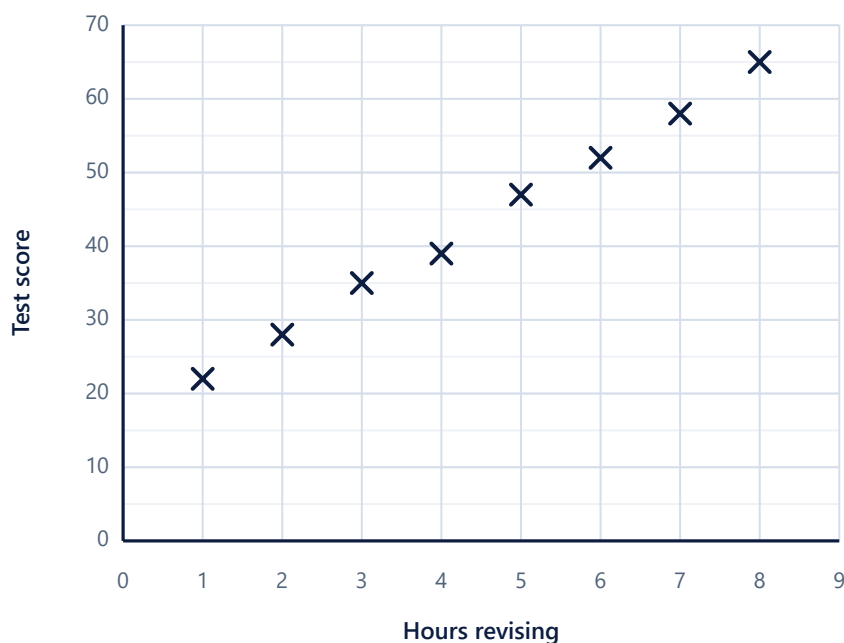
4

The table shows the number of hours that each of 8 students spent revising, and their scores in a test.

Hours revising	1	2	3	4	5	6	7	8
Test score	22	28	35	39	47	52	58	65

The data is plotted on a scatter graph.

- Describe the type of correlation the scatter graph would show.
- Interpret this correlation for these students.



(2 marks)

As the hours increase from 1 to 8, the scores rise steadily from 22 to 65, so the correlation is positive

In context, more revision time is associated with a higher test score

5

Zoe has drawn a scatter graph and wants to add a line of best fit.

Describe how a line of best fit should be drawn.

(2 marks)

a straight line, drawn with a ruler

follows the trend of the points

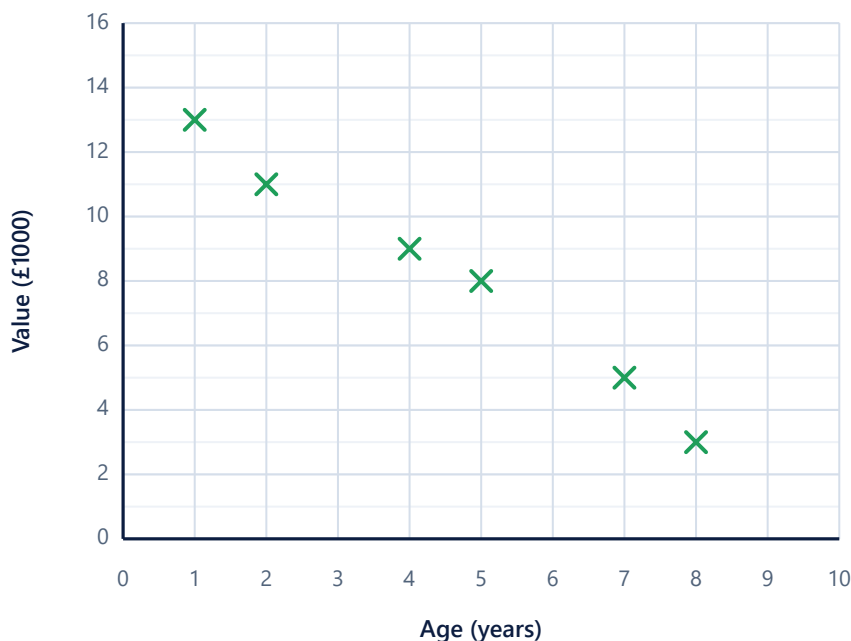
about as many points above as below

6

The table shows the age and the value of six second-hand cars of the same model.

Age (years)	1	2	4	5	7	8
Value (£1000)	13	11	9	8	5	3

On the grid, plot the information in the table as a scatter graph.



(2 marks)

Age goes across, value goes up

(1, 13) (2, 11) (4, 9)

(5, 8) (7, 5) (8, 3)

Six crosses plotted at these points

7

The table shows the hours of television 6 students watched in a week and their scores in a test.

Hours of TV	2	5	8	10	14	16
Test score	78	70	61	55	44	38

a. What type of correlation would a scatter graph of this data show?

b. Write a sentence to describe what this correlation tells you.

(2 marks)

a)

hours go up, scores go down

negative correlation

b)

more TV, lower scores

8

The table shows the shoe size and the maths mark of 8 students.

Shoe size	4	9	6	7	5	8	3	10
Maths mark	62	40	55	70	35	66	48	52

Jade says there is no correlation between shoe size and maths mark.

Is Jade correct? Give a reason.

(2 marks)

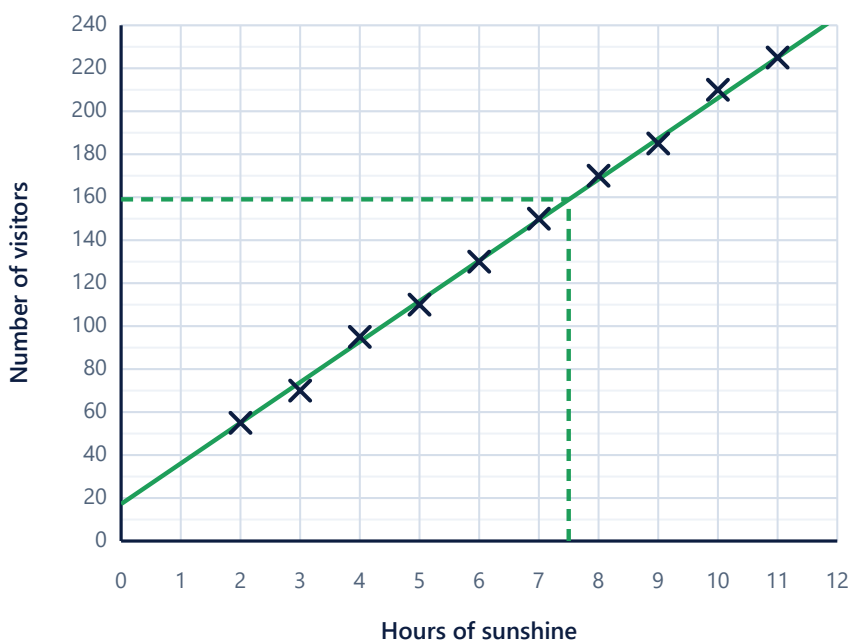
no pattern in the marks as shoe size changes

Yes, no correlation

9

The scatter graph shows the number of hours of sunshine and the number of visitors to a country park on each of 10 days.

- Describe the correlation shown by the scatter graph.
- On another day there were 7.5 hours of sunshine. By drawing a line of best fit, estimate the number of visitors to the park on this day.



(3 marks)

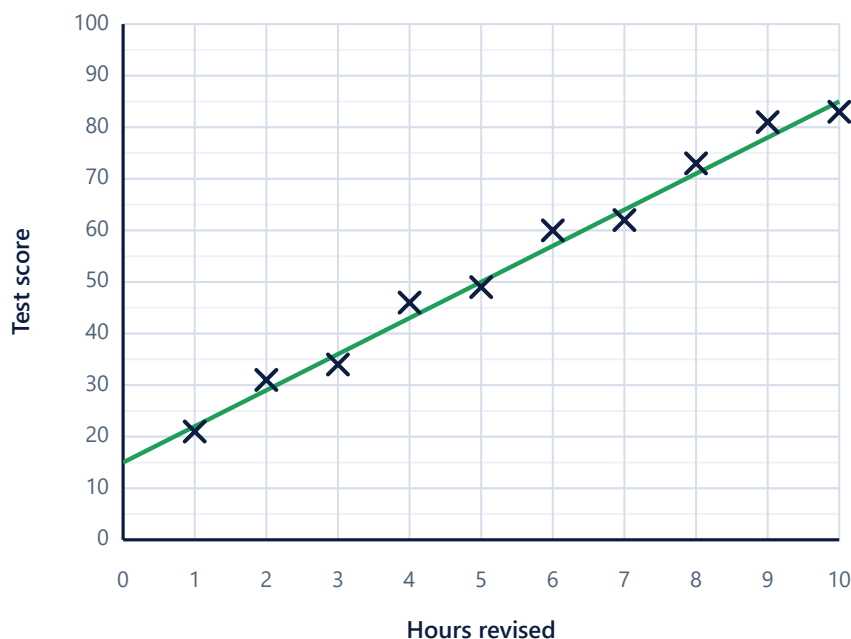
The points rise from bottom left to top right, so the correlation is positive

Draw a line of best fit through the middle of the points

Reading up from 7.5 hours to the line and across gives roughly 160 visitors (any value from 150 to 175 with a sensible line)

10 The scatter graph shows the number of hours ten students revised and their scores in a test.

- Draw a line of best fit on the scatter graph.
- Use your line of best fit to estimate the test score of a student who revised for 6.5 hours.



(3 marks)

a) Straight line through the middle of the points
about the same number of points above and below

b) Up from 6.5 hours to the line, then across

About 60

11 A scatter graph shows the hours revised (from 1 to 9 hours) and the test score of some students. The line of best fit passes through (0, 10) and (10, 60).

- Use the line to estimate the test score of a student who revised for 7 hours.
- Explain why the line should not be used to estimate the score of a student who revised for 25 hours.

(3 marks)

a)

50 marks over 10 hours = 5 marks per hour

$$= 10 + 7 \times 5$$

$$= 45$$

45

b)

25 hours is outside the data (1 to 9 hours)

estimate unreliable

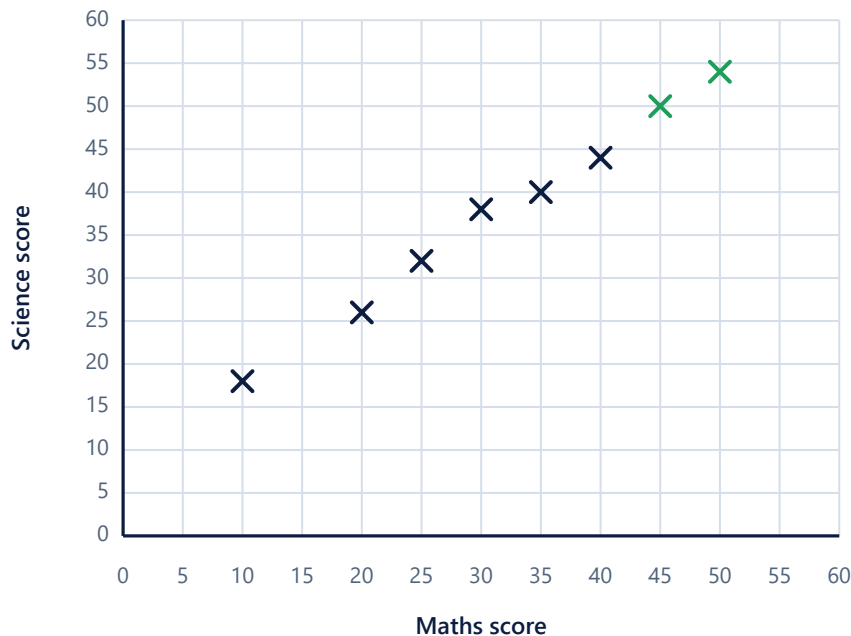
12

The table shows the maths score and the science score of 8 students.

Maths score	10	20	25	30	35	40	45	50
Science score	18	26	32	38	40	44	50	54

The first six points have been plotted on the scatter graph.

- Complete the scatter graph by plotting the last two points.
- Describe the correlation between the maths scores and the science scores.
- Interpret this correlation.



(3 marks)

Plot (45, 50) and (50, 54) on the grid

The points rise from bottom left to top right, so the correlation is positive

In context, students who do well in maths also tend to do well in science

13

The table shows the temperature at noon and the number of ice creams sold at a kiosk on 8 days.

Temperature (°C)	14	16	18	20	22	24	26	28
Ice creams sold	28	33	39	45	20	56	62	68

- Write down the coordinates of the outlier.
- Write down the type of correlation shown by the other points.
- A line of best fit passes through (14, 28) and (28, 68). Use it to estimate the number of ice creams sold when the temperature is 21°C.

(4 marks)

a)

sales should be about 50 at 22°C

(22, 20)

b)

positive correlation

c)

14°C to 28°C: sales rise by 40

21°C is halfway

$$28 + 20 = 48$$

48

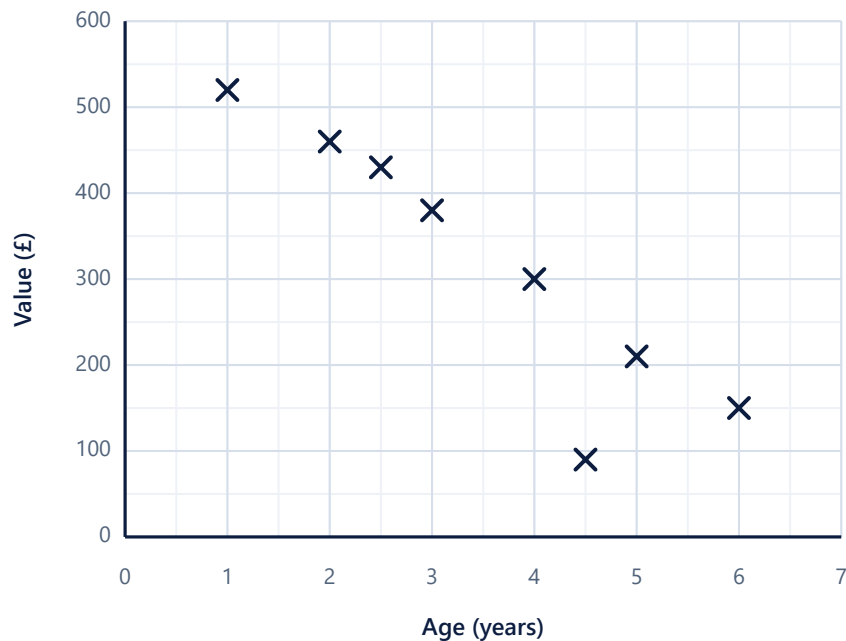
14

The table shows the age, in years, and the resale value, in pounds, of 8 laptops of the same model.

Age (years)	1	2	2.5	3	4	4.5	5	6
Value (£)	520	460	430	380	300	90	210	150

The data is plotted on a scatter graph.

- Describe the correlation between the age of a laptop and its value.
- One laptop does not fit the general trend. Which laptop is this?
- Interpret the correlation for these laptops.
- Give a reason why the scatter graph should not be used to estimate the value of a 10 year old laptop.



(4 marks)

As age increases the value falls, so the correlation is negative

The 4.5 year old laptop at £90 lies well below the trend of the other points (its neighbours at 4 and 5 years are worth £300 and £210), so it is the outlier

In context, older laptops are worth less

The data only covers ages 1 to 6 years, so estimating at 10 years is extrapolation and may not be reliable