Scatter diagrams and correlation

Grade 3 | Worked solutions

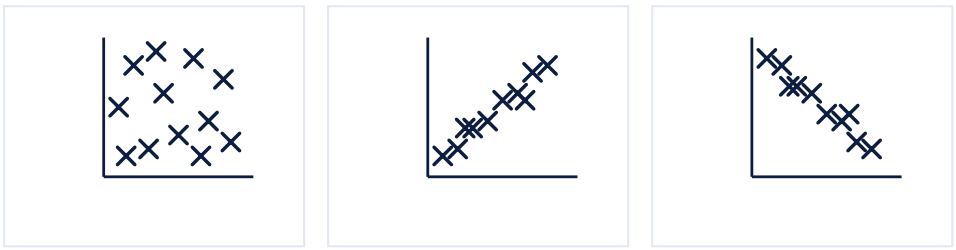
GCSE Statistics topic practice

1 Here are three scatter diagrams, A, B and C.

a. Write down the letter of the diagram that shows negative correlation. (1)

b. Write down the letter of the diagram that shows no correlation. (1)

c. Which diagram is most likely to show the height and the weight of some dogs? (1)



A *B* *C*

(3 marks)

a) points go down from left to right

C

b) points scattered with no pattern

A

c) taller dogs are usually heavier

This is positive correlation

The points go up from left to right in B

a) C b) A c) B

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2 The table shows the number of hours 8 students spent revising and their marks in a science test.

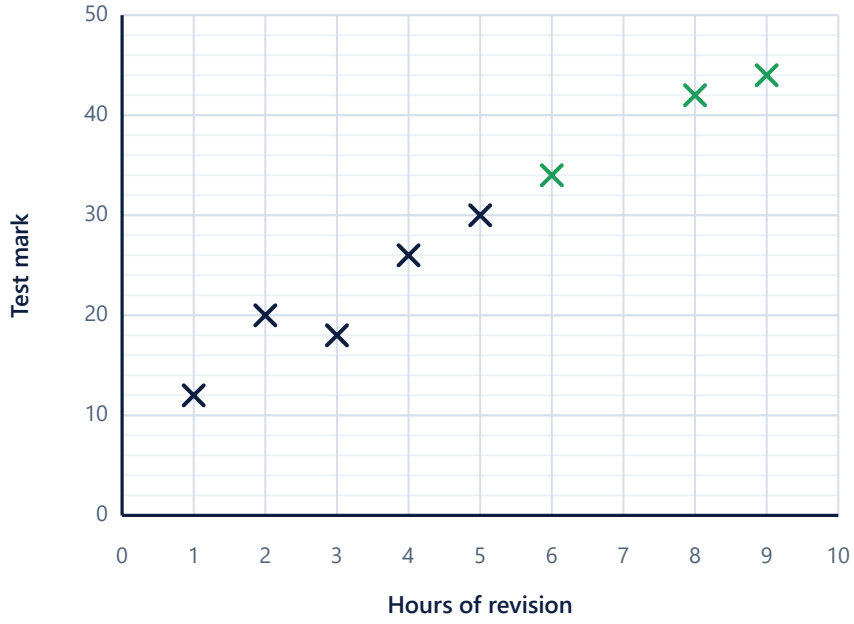
Hours of revision	1	2	3	4	5	6	8	9
Test mark	12	20	18	26	30	34	42	44

The first five students have been plotted on the scatter diagram.

a. Plot the information for the other three students. (2)

b. Write down the type of correlation shown. (1)

c. Describe the relationship between the hours of revision and the test mark. (1)



(4 marks)

a) one small square up is 2 marks

Plot crosses at (6, 34), (8, 42) and (9, 44)

b) the points go up from left to right

Positive correlation

c)

The more hours a student revised

the higher their test mark

a) plotted b) positive c) more revision, higher mark

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3 A kiosk in a park sells hot drinks. The scatter diagram shows the midday temperature and the number of hot drinks sold on each of 8 days.

The table shows the information for two more days.

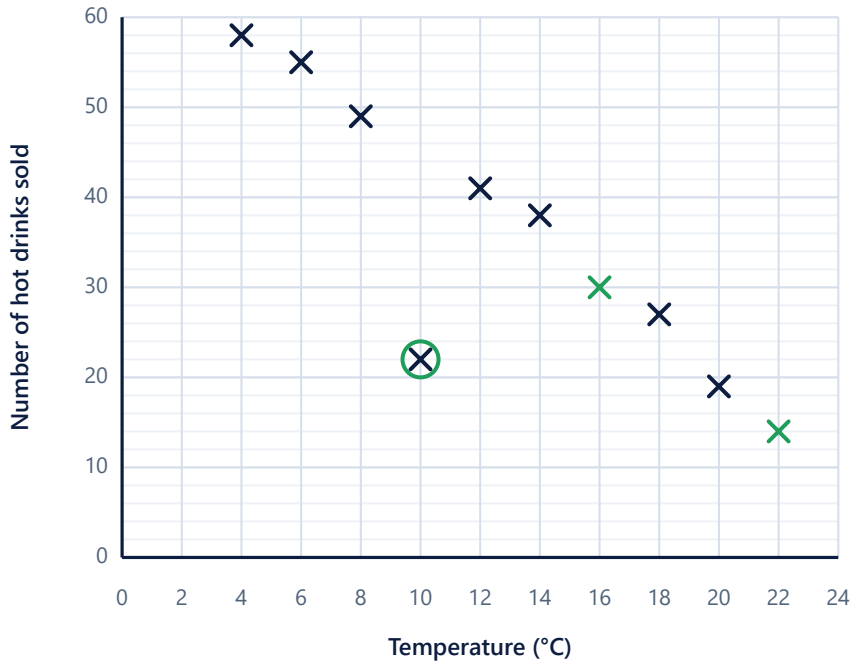
Temperature (°C)	16	22
Number of hot drinks sold	30	14

a. Plot the information from the table on the scatter diagram. (1)

b. Describe the type of correlation shown. (1)

c. Interpret the correlation in context. (1)

d. On one of the days the kiosk closed early. Write down the temperature on that day. Give a reason for your answer. (1)



(4 marks)

a)

Plot crosses at (16, 30) and (22, 14)

b) the points go down from left to right

Negative correlation

c)

As the temperature goes up

the number of hot drinks sold goes down

d) Look for a point away from the others

(10, 22) is far below the other points

Days at 8 °C and 12 °C sold 49 and 41

a) plotted b) negative c) hotter, fewer sold d) 10 °C

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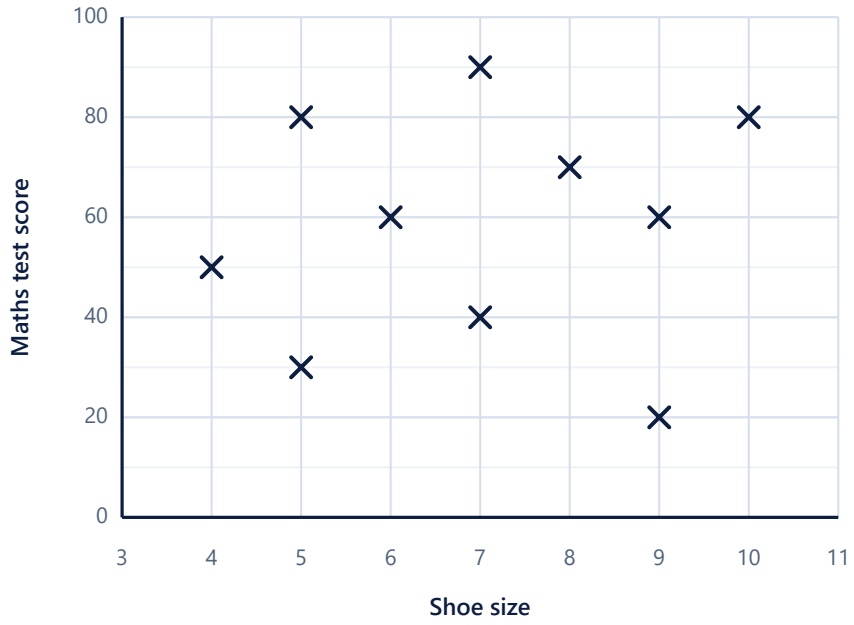
4 The scatter diagram shows the shoe size and the maths test score of each of 10 students.

a. Write down the shoe size of the student with the highest score. (1)

b. How many of the students scored more than 60? (1)

c. Describe the correlation shown. (1)

d. Joe says, "Students with bigger feet do better at maths."
Does the scatter diagram support what Joe says? Give a reason. (1)



(4 marks)

a) the highest point is (7, 90)

Shoe size 7

b) points above the line for 60

Scores of 70, 80, 80 and 90

4 students

c) the points show no pattern

No correlation

d)

No, the diagram does not support Joe

Score does not go up as shoe size goes up

a) 7 b) 4 c) no correlation d) no

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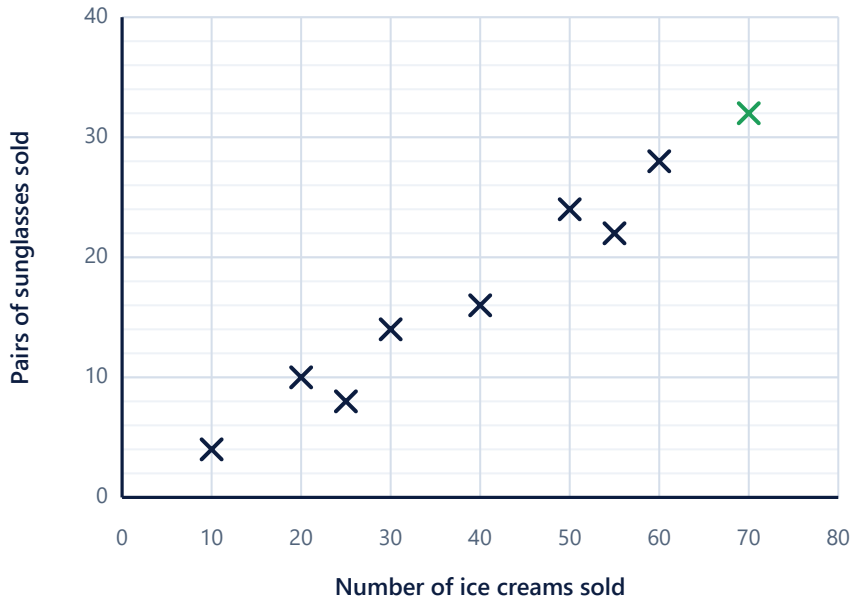
5 A beach shop sells ice creams and sunglasses. The scatter diagram shows the number of ice creams and the number of pairs of sunglasses sold on each of 8 days.

a. Describe the type of correlation shown. (1)

b. On one day the shop sold 40 ice creams.
Write down the number of pairs of sunglasses sold on that day. (1)

c. On another day the shop sold 70 ice creams and 32 pairs of sunglasses.
Plot this information on the scatter diagram. (1)

d. Ben says, "Selling more ice creams makes people buy more sunglasses."
Is Ben correct? Give a reason for your answer. (2)



(5 marks)

a) the points go up from left to right

Positive correlation

b) the point at 40 ice creams

16 pairs of sunglasses

c)

Plot a cross at (70, 32)

d)

No, Ben is not correct

Correlation does not mean one causes the other

Hot sunny weather makes both go up

a) positive b) 16 c) plotted d) no, the weather causes both

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