

Scatter Graphs and Correlation

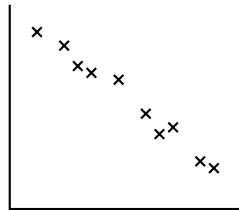
For AQA GCSE Mathematics (8300) • Foundation tier

Name _____

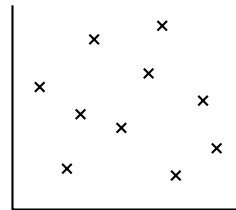
Total marks: **23**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 Here are two scatter graphs, *A* and *B*.



Graph *A*



Graph *B*

Write down the type of correlation shown by each graph.

(a) Graph *A*

[1 mark]

Answer _____

(b) Graph *B*

[1 mark]

Answer _____

2 Circle the type of correlation you would expect between the age of a car and its value.

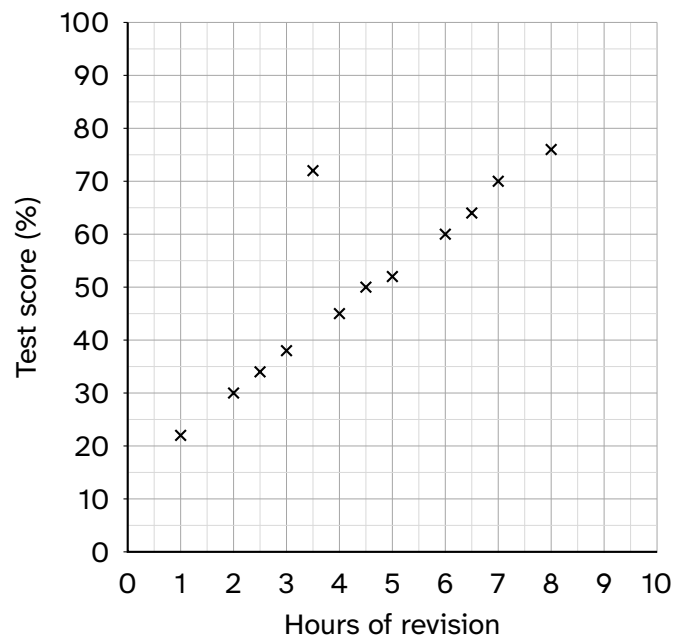
[1 mark]

positive

negative

no correlation

- 3 The scatter graph shows the number of hours some students revised and their test scores.



- (a) Write down the type of correlation.

[1 mark]

Answer _____

- (b) One point is an outlier.
Circle the outlier on the scatter graph.

[1 mark]

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

[1 mark]

- (d) Use your line of best fit to estimate the score of a student who revised for 5.5 hours.

[1 mark]

Answer _____ %

- (e) Give a reason why it may not be sensible to use your line to estimate the score for 10 hours of revision.

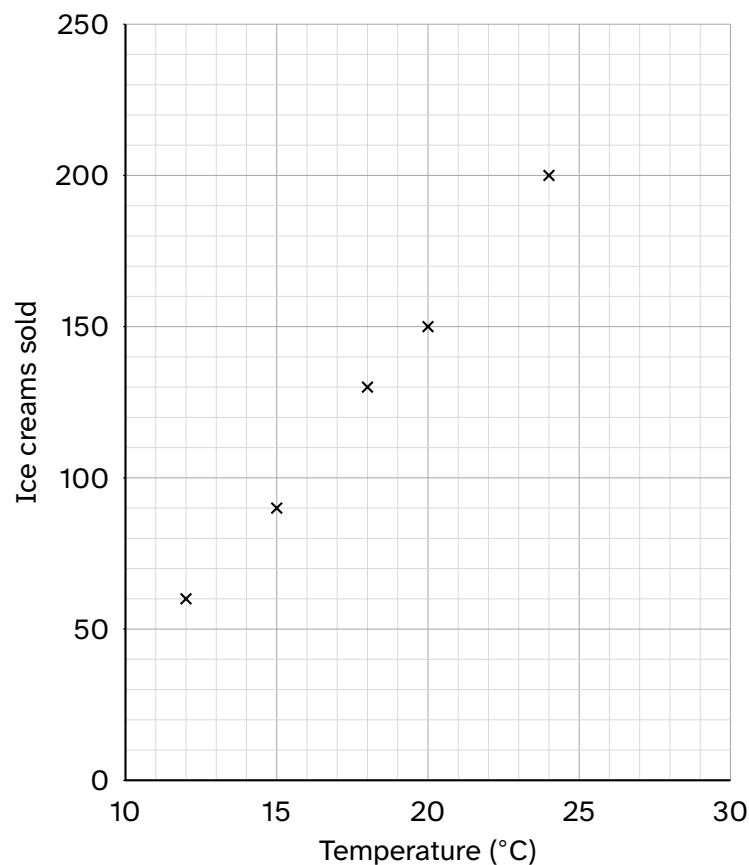
[1 mark]

- 4 A shop records the temperature and the number of ice creams sold on seven days.

Temperature ($^{\circ}\text{C}$)	12	15	18	20	22	24	27
Ice creams sold	60	90	130	150	170	200	240

The scatter graph shows some of the information from the table.

- (a) Complete the scatter graph by plotting the two missing points.



[2 marks]

(b) Write down the type of correlation shown in the scatter graph.

[1 mark]

Answer _____

(c) Write down the strength of the correlation.

[1 mark]

Answer _____

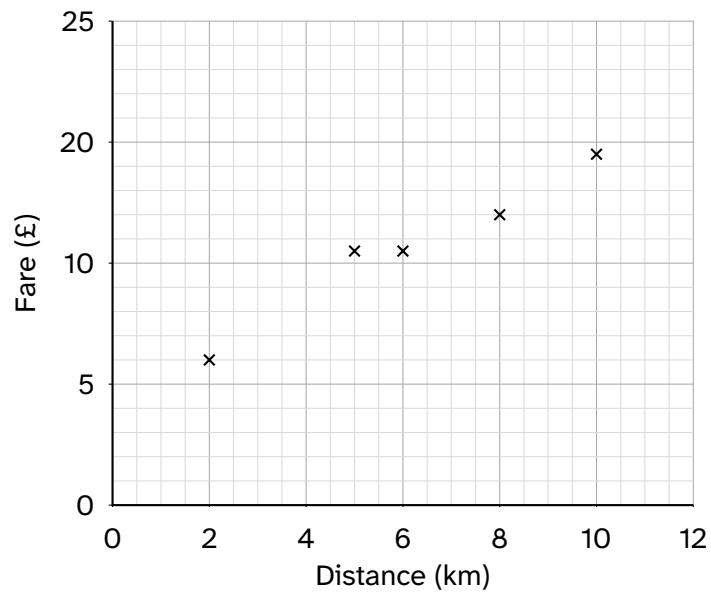
(d) The shop says, "*Hot weather causes people to buy ice creams.*"
Does the scatter graph prove this? Give a reason.

[1 mark]

- 5 Nadia records the distance and the fare for six taxi journeys.

Journey	A	B	C	D	E	F
Distance (km)	2	5	8	3	10	6
Fare (£)	6	11	14	7	19	11

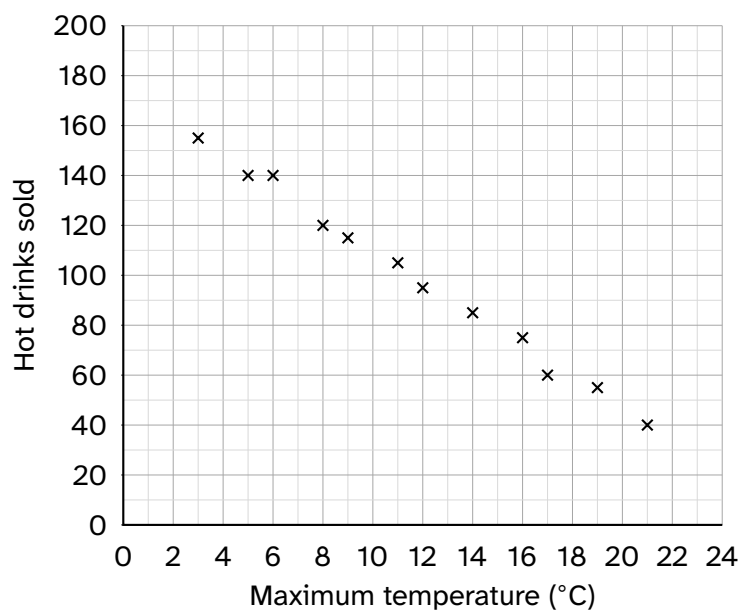
Nadia draws this scatter graph.



Write down **two** mistakes she has made.

[2 marks]

- 6** A café records the maximum temperature and the number of hot drinks sold on 12 days.
The scatter graph shows this information.



- (a) Circle the strength and type of correlation shown.

[1 mark]

weak positive

strong positive

weak negative

strong negative

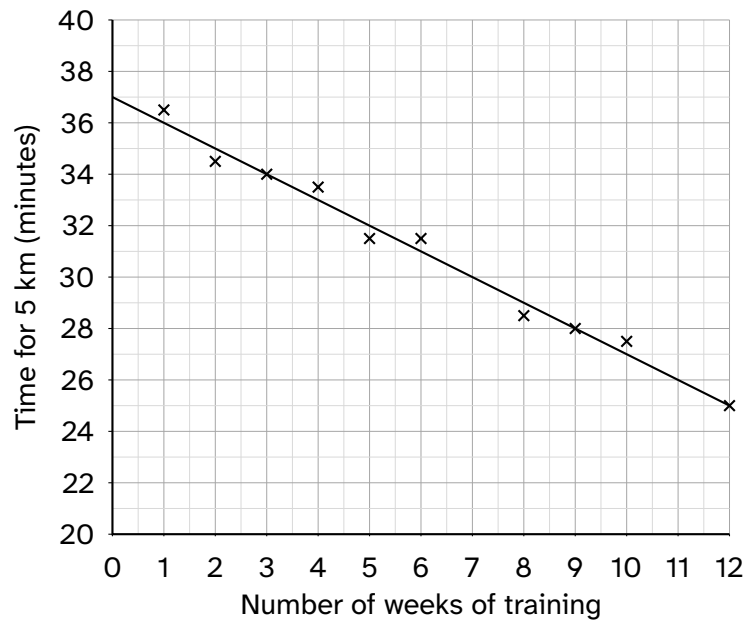
- (b) The weather forecast for next weekend is
Saturday maximum temperature 8°C
Sunday maximum temperature 18°C

Use a line of best fit to estimate the total number of hot drinks the café will sell next weekend.

[3 marks]

Answer _____

- 7 The scatter graph shows the number of weeks that 10 members of a running club have been training, and the time each of them takes to run 5 km. A line of best fit has been drawn.



- (a) Describe the relationship between the number of weeks of training and the time to run 5 km.

[1 mark]

- (b) Zara joins the club.
At the start she can run 5 km in 34 minutes.
She wants to get her time down to 26 minutes.
Use the line of best fit to estimate how many weeks of training this will take.

[3 marks]

Answer _____ weeks