Line of best fit, interpolation and extrapolation

Grade 4 | Foundation and Higher | 5 questions, 20 marks

GCSE Statistics topic practice

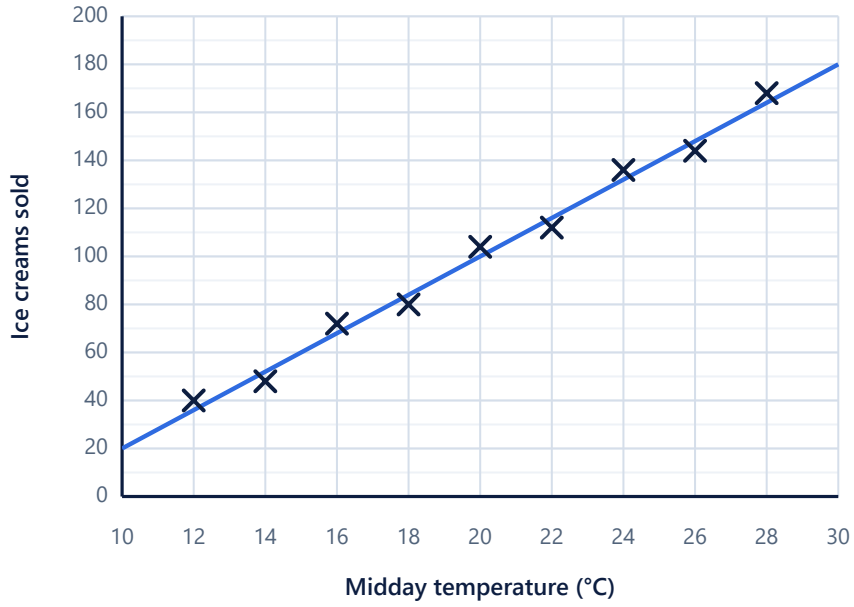
Name: _____ **Date:** _____ **Score:** _____ **/ 20**

1 A kiosk sells ice creams. The scatter diagram shows the midday temperature and the number of ice creams sold on each of 9 days. A line of best fit has been drawn.

a. Describe the correlation shown. (1)

b. Use the line of best fit to estimate the number of ice creams sold on a day when the midday temperature is 25°C. (1)

c. Is your answer to part (b) found by interpolation or by extrapolation? Give a reason for your answer. (1)



(3 marks)

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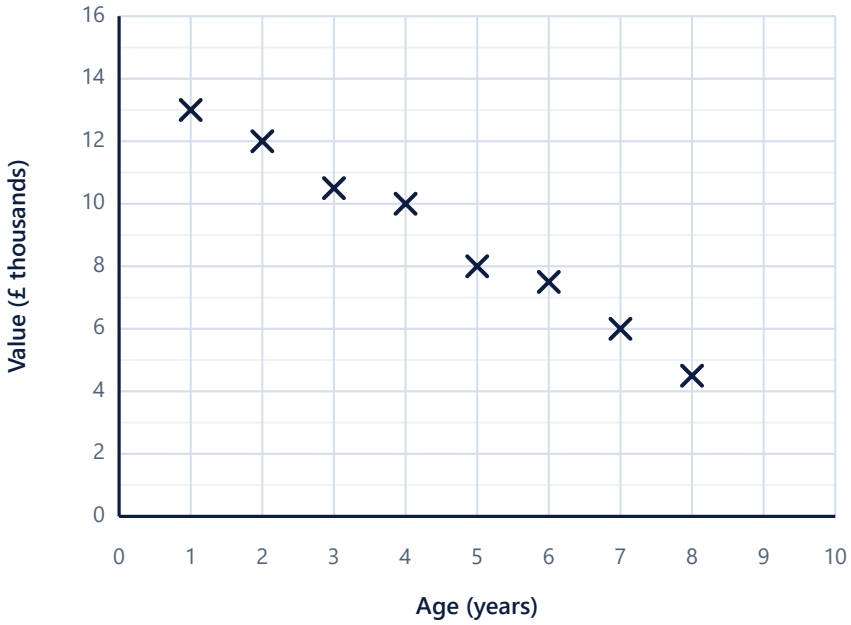
2 A garage sells used cars. The scatter diagram shows the age and the value of 8 cars of the same model.

a. Describe the correlation shown. (1)

b. Draw a line of best fit on the scatter diagram. (1)

c. Use your line to estimate the value of a car of this model that is 4.5 years old. (1)

d. Ravi uses the line of best fit to estimate the value of a car of this model that is 12 years old. Comment on the reliability of his estimate. (1)



(4 marks)

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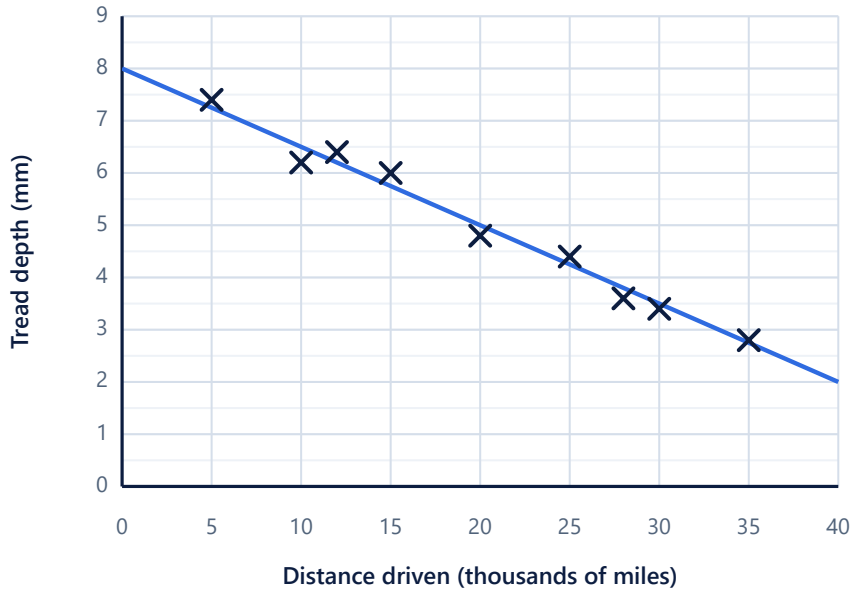
3 A garage records the distance driven and the tread depth of 9 tyres of the same make. The scatter diagram shows the results. A line of best fit has been drawn.

a. Use the line of best fit to estimate the tread depth of a tyre that has been driven 20 thousand miles. (1)

b. Leah extends the line of best fit to estimate the tread depth of a tyre that has been driven 60 thousand miles. She gets −1 mm. Explain why Leah's estimate cannot be correct. (1)

c. Which estimate would be more reliable, one for a tyre driven 20 thousand miles or one for a tyre driven 38 thousand miles? Give a reason for your answer. (1)

d. Another tyre of this make has been driven 25 thousand miles and has a tread depth of 6.5 mm. Compare this tyre with the pattern shown by the other tyres. (1)



(4 marks)

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4 The table shows the number of hours that 6 students spent revising and their scores in a test.

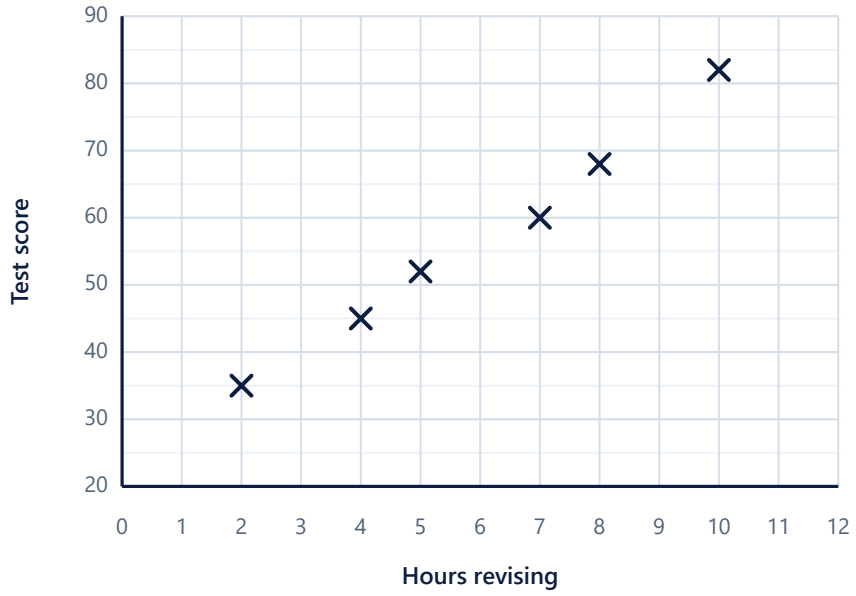
Hours revising	2	4	5	7	8	10
Test score	35	45	52	60	68	82

The 6 points have been plotted on the scatter diagram.

a. Work out the mean number of hours and the mean test score. (2)

b. Plot the mean point on the scatter diagram and draw a line of best fit through it. (1)

c. Use your line to estimate the test score of a student who revises for 9 hours. (1)



(4 marks)

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5 A taxi firm records the distance and the fare for each of 10 journeys. The scatter diagram shows the results.

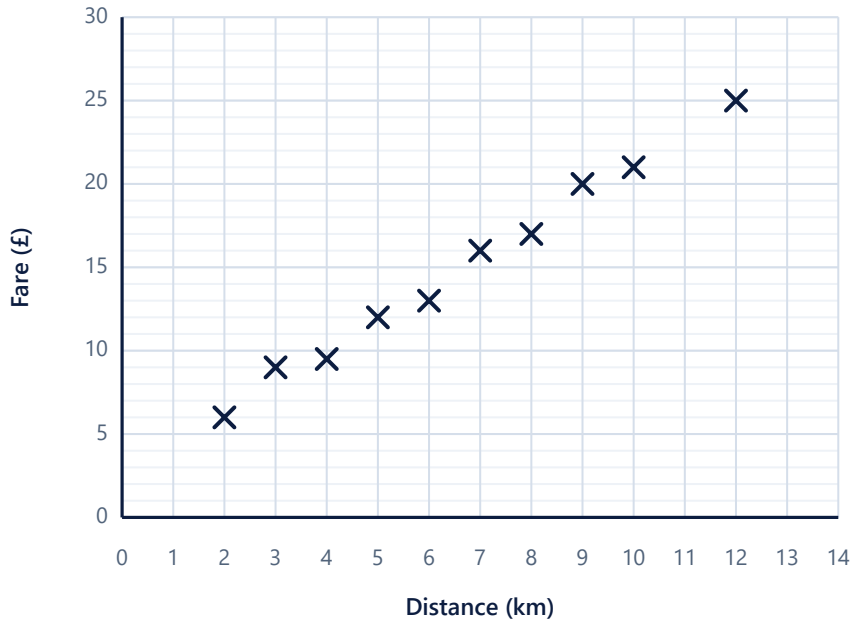
a. Describe the relationship between the distance and the fare. (1)

b. Draw a line of best fit on the scatter diagram. (1)

c. Use your line to estimate the fare for a journey of 11 km. (1)

d. One journey cost £15. Use your line to estimate the distance of this journey. (1)

e. Explain why the line of best fit should not be used to estimate the fare for a journey of 30 km. (1)



(5 marks)

End of questions | Total 20 marks

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