



S31-test Scatter Graphs and Line of Best Fit: Test Pack

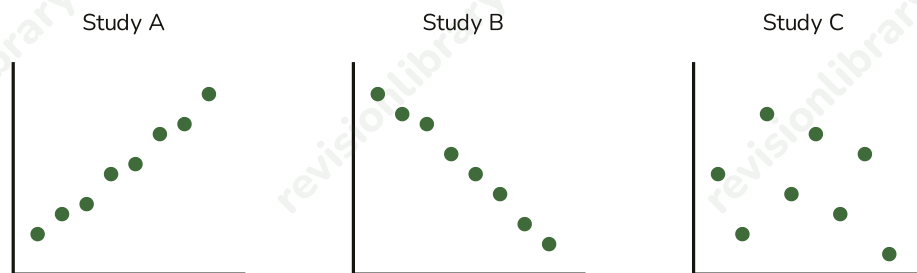
EDEXCEL 1ST0 · Calculator allowed · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Three students each carried out a small survey and plotted their results on a scatter graph.



- (a) Write down the type of correlation shown in Study A. (1)

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- (b) Write down the type of correlation shown in Study B. (1)

.....

- (c) Write down the type of correlation shown in Study C. (1)

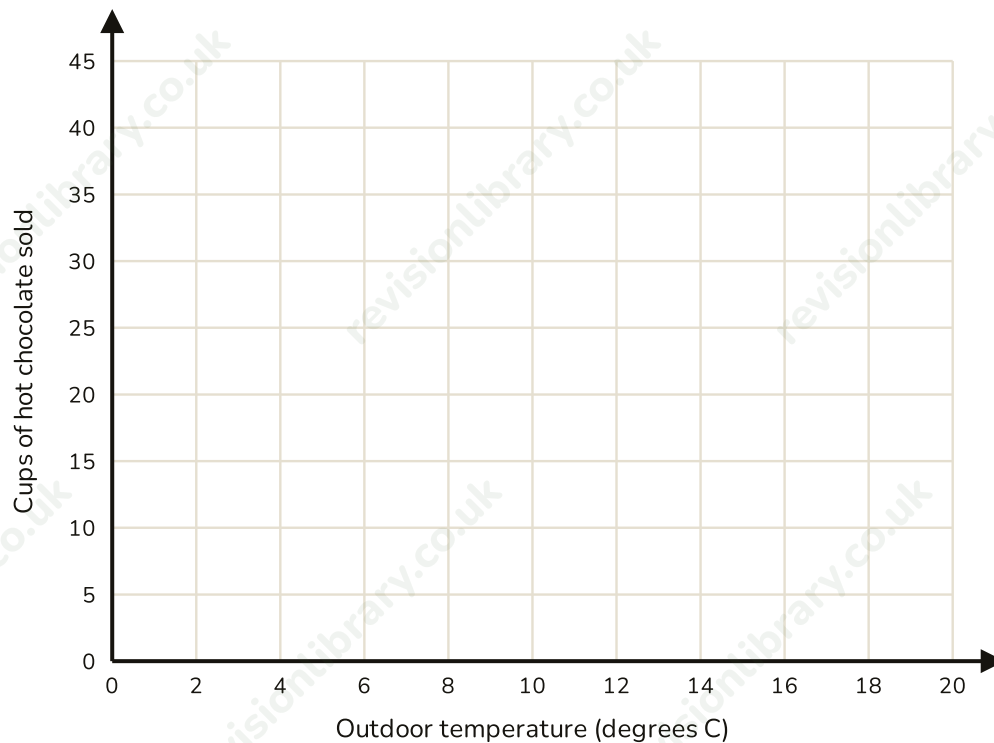
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(Total for Question 1 is 3 marks)

- 2 A cafe owner records the outdoor temperature and the number of cups of hot chocolate sold on 8 different days.

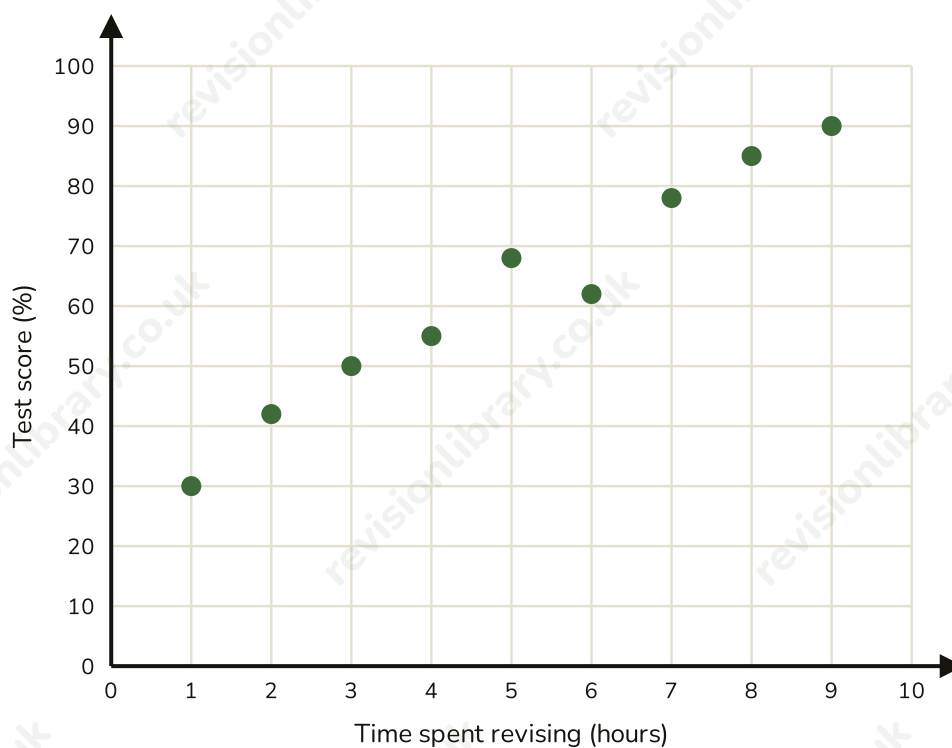
Outdoor temperature (degrees C)	2	5	7	9	12	14	16	18
Cups of hot chocolate sold	42	38	32	28	20	16	10	6

On the grid provided, plot a scatter graph to show this information.



(Total for Question 2 is 4 marks)

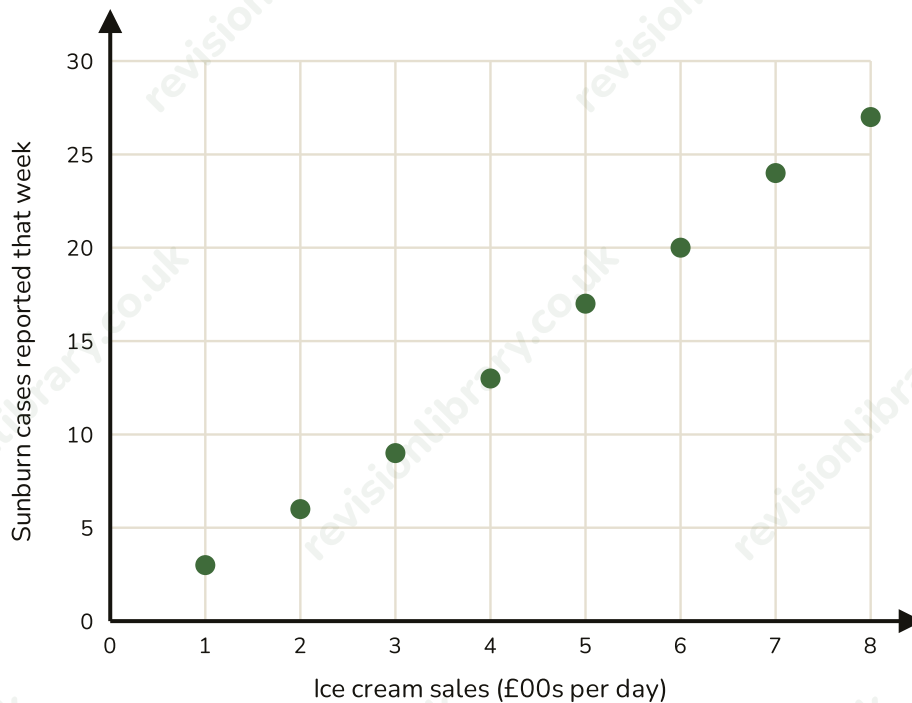
- 3** The scatter graph shows, for 9 students, the number of hours spent revising for a test and the score they achieved.



- (a) Describe the type and strength of correlation shown by the scatter graph. (1)
- (b) Write down the test score of the student who revised for 3 hours. (1)
- (c) Work out how many of the 9 students revised for more than 5 hours and scored more than 70%. (2)

(Total for Question 3 is 4 marks)

- 4 The scatter graph shows, for 8 days at a seaside town, the value of ice cream sales and the number of sunburn cases reported that week.



- (a) Describe the correlation shown by the scatter graph. (1)
- (b) A local newspaper reports: 'Eating more ice cream causes sunburn.' Explain why this conclusion is not necessarily correct. (2)
- (c) Suggest another factor that could explain the pattern shown on the scatter graph. (1)

(Total for Question 4 is 4 marks)

Mark scheme · S31-test Scatter Graphs and Line of Best Fit: Test Pack

Question 1

- (a) **B1** Positive correlation cao
- (a) **Answer: Positive correlation**
- (b) **B1** Negative correlation cao
- (b) **Answer: Negative correlation**
- (c) **B1** No correlation cao
- (c) **Answer: No correlation**

Question 2

- **B1** at least 3 of the 8 points plotted correctly ($\pm$ half a small square)
- **B1** at least 6 of the 8 points plotted correctly
- **B1** all 8 points plotted correctly
- **B1** points left unjoined, with no line of best fit drawn
- **Answer: Scatter graph with points at (2,42), (5,38), (7,32), (9,28), (12,20), (14,16), (16,10), (18,6).**

Question 3

- (a) **B1** strong (or fairly strong) positive correlation, oe
- (a) **Answer: Strong positive correlation**
- (b) **B1** 50 cao
- (b) **Answer: 50**
- (c) **M1** identifies the points with $x > 5$, i.e. (6,62), (7,78), (8,85), (9,90)
- (c) **A1** 3 cao
- (c) **Answer: 3**

Question 4

- (a) **B1** strong positive correlation, oe
- (a) **Answer: Strong positive correlation**
- (b) **B1** states that correlation does not mean causation, oe
- (b) **B1** correct supporting explanation, e.g. both ice cream sales and sunburn cases could be caused by something else rather than one causing the other, oe
- (b) **Answer: Correlation does not mean causation - both variables could be affected by a third factor rather than one directly causing the other.**
- (c) **B1** any valid confounding variable, e.g. hot, sunny weather (leads to both more ice cream sales and more sunburn), oe
- (c) **Answer: Hot, sunny weather - it would lead to both more ice cream sales and more sunburn, without one causing the other.**