inkMaths

QUESTION WORKBOOK

Correlation and regression

Statistics · Year 12–13

7 questions · 20 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 A scatter diagram gives a product moment correlation coefficient of $r = -0.9$. Describe the correlation, and sketch in words what the diagram looks like. [2]

A2 A regression line for exam mark y against revision hours x is $y = 3.5 + 0.6x$. Interpret the numbers 3.5 and 0.6 in context. [3]

SECTION B · Standard

B1 Using the line above, predict the mark of a student who revised for 10 hours, given that the data covered 2 to 15 hours. [3]

B2 A teacher uses the same line to predict the mark after 40 hours of revision. Comment on the prediction. [4]

B3 Ice cream sales and drowning incidents are strongly positively correlated across the months of a year. Explain what this does and does not show. [3]

SECTION C · Stretch

C1 Explain why the regression line of y on x should not be used to predict x from a known y. [3]

C2 A coefficient of $r = 0.05$ is reported for a large scatter of points. What does this value say? [2]