Marked example 3

Paper 2 style · Graphic display calculator

3 7 marks SL 4.4 · 4.10 ●●○ Typical

Eight students recorded the hours x they studied for a test and their score y.

x	2	3	5	6	8	9	11	12
y	47	55	58	63	66	75	76	85

(a) Find the value of Pearson's correlation coefficient r. **[1]**

(b) Find the equation of the regression line of y on x. **[2]**

(c) Estimate the score of a student who studied for 10 hours. **[2]**

(d) Estimate the number of hours studied by a student who scored 70. **[2]**

MARKSCHEME (a)

$r = 0.979 \ \ (0.979458\ldots)$ **A1**

Total 1 mark

MARKSCHEME (b)

$y = 3.38x + 42.0 \ \ (3.38043\ldots, 41.9619\ldots)$ **A1A1**

Total 2 marks

Note A1 for each coefficient.

MARKSCHEME (c)

$3.38043 \times 10 + 41.9619$ **(M1)**

$75.8 \ \ (75.7663\ldots)$ **A1**

Total 2 marks

MARKSCHEME (d)

line of x on y: $x = 0.284y - 11.6$ **(M1)**

8.24 hours $\ (8.24158\ldots)$ **A1**

Total 2 marks

Note Not the line of (b) rearranged, which gives 8.29.

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