

The table below shows the test scores of SL students following a six-week revision period using studyib.

before (x)	25	70	90	55	34	62	48
after (x)	38	82	90	88	38	70	76

- a) Work out r , Pearson's correlation coefficient

The y on x regression line is $y = ax + b$

- b) Find a and b
c) A student scores 80 marks before revision. Use the regression line to estimate the score after revision

The x on y regression line is $x = cx + d$

- d) Find c and d
e) A student scores 90 marks after revision. Use the regression line to estimate the score before revision
f) Find the point of intersection of the y on x and the x on y regression lines

a) $r = 0.847$

b) $y = 0.855x + 22.0$

c) $y = 0.8546 \times 80 + 21.975$

$$y \approx 90.3$$

d) $x = 0.8389y - 2.9093$

e) $x = 0.8389 \times 90 - 2.9093$

$$x = 72.6$$

- f) You can try to find the intersection of these two lines algebraically, but the intersection of the y on x and x on y lines occurs at (\bar{x}, \bar{y})

$$\text{Intersection at } (54.9, 68.9)$$