

Question 7**(7 marks)**

The ages in years, and salaries in thousands of dollars (\$'000), of eight employees at a company are shown below. The equation of the least-squares line for these data is $y = 0.2x + 38$.

Age (x)	35	37	41	43	45	47	53	55
Salary (y)	42	44	47	50	52	51	49	45

The table below shows the predicted y -values, obtained from the equation of the least-squares line, and the corresponding residuals.

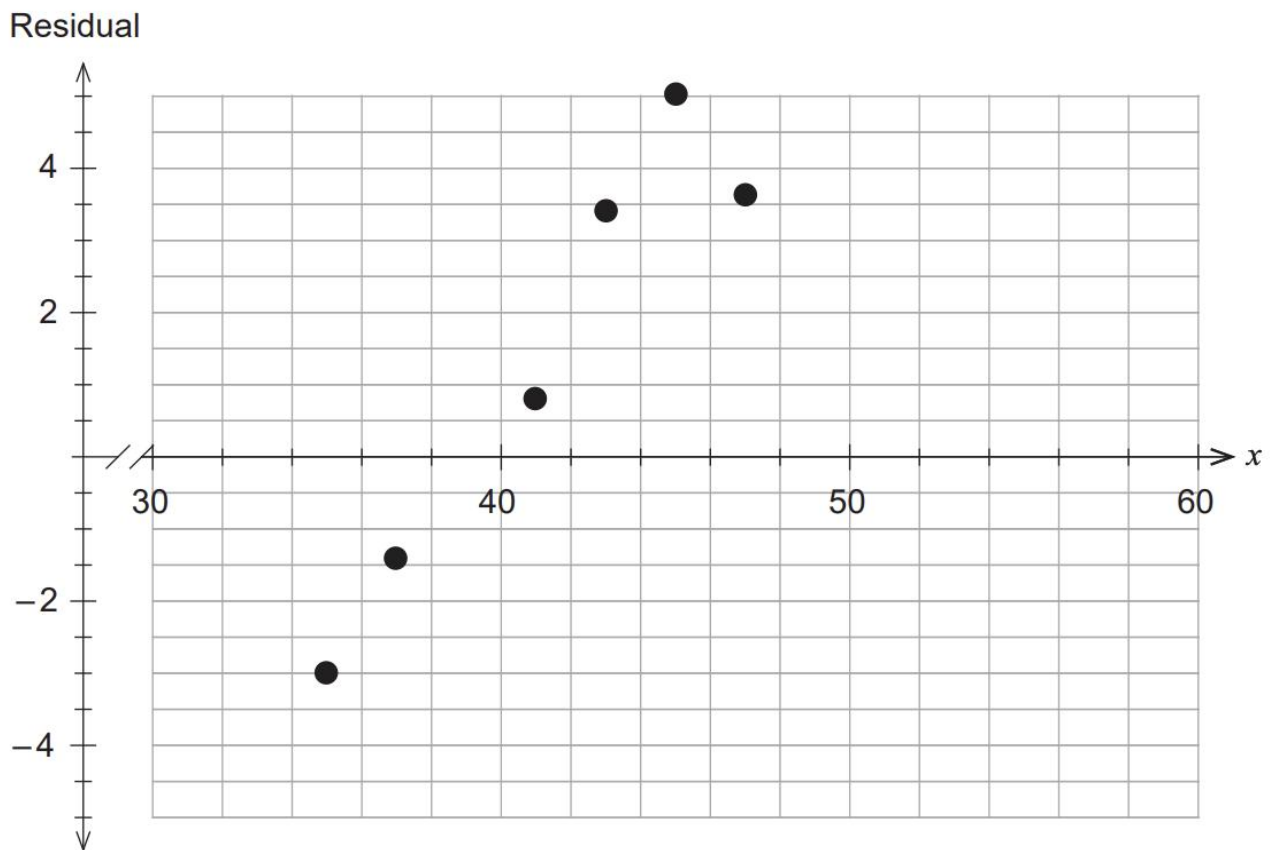
x	y	Predicted y -value	Residual
35	42	45.0	-3.0
37	44	45.4	-1.4
41	47	46.2	0.8
43	50	46.6	3.4
45	52	47.0	5.0
47	51	47.4	3.6
53	49	48.6	0.4
55	45	A	B

(a) Determine the value of **A** and **B**.

(2 marks)

(b) Plot the last two residuals on the graph below.

(2 marks)



(c) Justify, using the residual plot in part (b), whether the least-squares line is a good model for these data. (2 marks)

The calculated correlation coefficient for these data is 0.42.

(d) Describe how this supports your response in part (c). (1 mark)