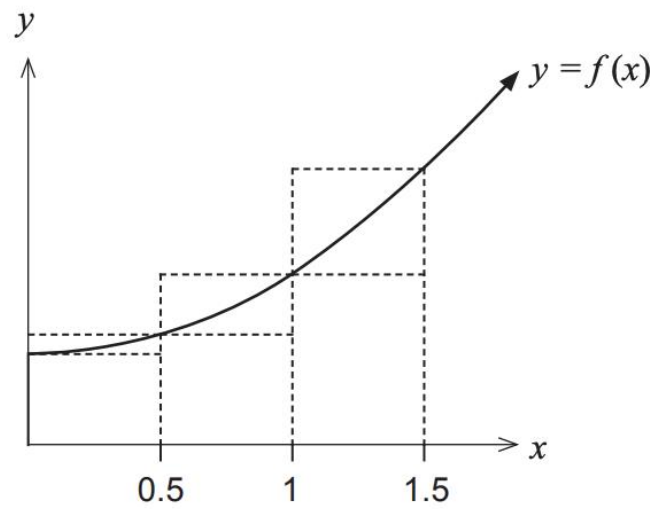


Question 9**(8 marks)**

Consider the function $f(x)$ shown graphed below. The table gives the value of the function at the given x values.



x	0	0.5	1	1.5
$f(x)$	20	21	24	29

- (a) By considering the areas of the rectangles shown, demonstrate and explain why

$$32.5 < \int_0^{1.5} f(x) dx < 37.$$

(3 marks)

Consider the table of further values of $f(x)$ given below.

x	0	0.5	1	1.5	2	2.5	3
$f(x)$	20	21	24	29	36	45	56

(b) Use the table values to determine the best estimate possible for $\int_1^3 f(x)dx$. (3 marks)

(c) State **two** ways in which you could determine a more accurate value for $\int_1^3 f(x)dx$. (2 marks)