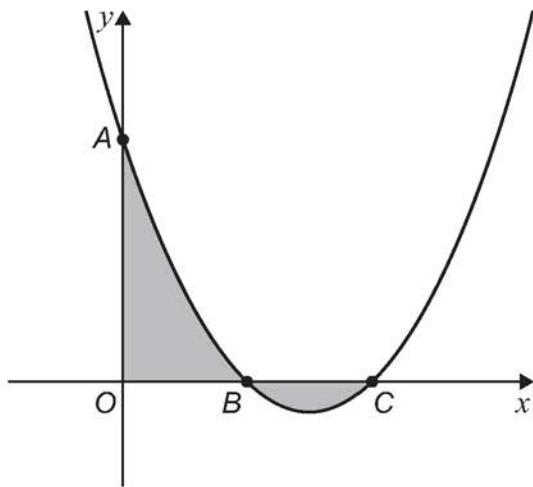


7

The diagram below shows the graph of the curve that has equation  $y = x^2 - 3x + 2$  along with two shaded regions.



7 (a) State the coordinates of the points  $A$ ,  $B$  and  $C$ .

[2 marks]

7 (b) Katy is asked by her teacher to find the total area of the two shaded regions.

Katy uses her calculator to find  $\int_0^2 (x^2 - 3x + 2) dx$  and gets the answer  $\frac{2}{3}$

Katy's teacher says that her answer is incorrect.

7 (b) (i) Show that the total area of the two shaded regions is 1

Fully justify your answer.

[5 marks]

7 (b) (ii) Explain why Katy's method was not valid.

[1 mark]