



Air maths tuition

Interact, engage and perform

## Intersection of curves - Mid points | Past Papers Question | P1 CIE June 2013 Q7(i)

A curve has equation  $y = x^2 - 4x + 4$  and a line has equation  $y = mx$ , where  $m$  is a constant.

(i) For the case where  $m = 1$ , the curve and the line intersect at the points  $A$  and  $B$ .

Find the coordinates of the mid-point of  $AB$ . [4]

$$y = x^2 - 4x + 4 \quad \textcircled{1}$$

$$y = x \quad \textcircled{2}$$

Sub  $\textcircled{2}$  into  $\textcircled{1}$   $x = x^2 - 4x + 4$

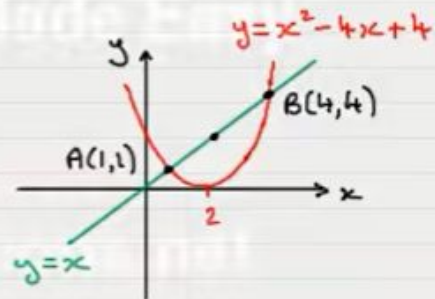
$$\therefore x^2 - 5x + 4 = 0$$

$$\therefore (x - 4)(x - 1) = 0$$

$$\therefore x - 4 = 0 \text{ or } x - 1 = 0$$

$$\therefore x = 4 \text{ or } x = 1$$

from  $\textcircled{2}$  when  $x = 4$ ,  $y = 4$  or  $x = 1$ ,  $y = 1$



$$\therefore \text{mid point } AB = \left( \frac{1+4}{2}, \frac{1+4}{2} \right)$$

$$= \left( \frac{5}{2}, \frac{5}{2} \right)$$

With the acknowledgement of [Exam Solutions](#).  
Find lots more revision sheets on [Air Maths Tuition](#).

[This Video](#)



Exam Solutions

maths made easy