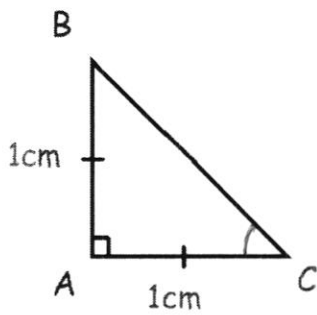


21st June



Corbettmaths



Show that $\cos 45^\circ = \frac{\sqrt{2}}{2}$

$$BC = \sqrt{1^2 + 1^2} = \sqrt{2}$$

$$\hat{BCA} = 45^\circ$$

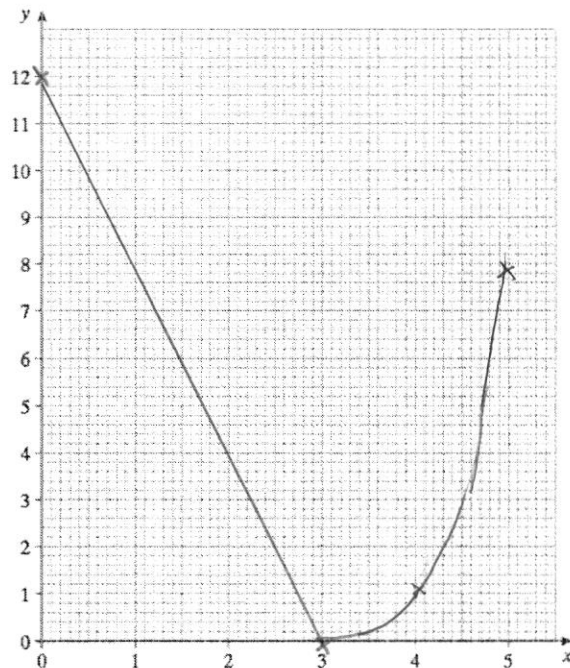
$$\cos \hat{BCA} = \frac{AC}{BC} \Rightarrow \cos 45^\circ = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

A function $f(x)$ is defined as

$$f(x) = 12 - 4x \quad 0 \leq x < 3$$

$$= (x - 3)^3 \quad 3 \leq x \leq 5$$

Draw the graph of $y = f(x)$ on the axes.



Find the coordinates where the line $x + y = 3$ and the curve $x^2 + 6y = 30$ intersect.

Give your answers in surd form.

$$y = 3 - x$$

$$x^2 + 6(3 - x) = 30$$

$$x^2 - 6x - 12 = 0$$

$$(x - 3)^2 - 21 = 0$$

$$(x - 3)^2 = 21$$

$$x - 3 = \pm\sqrt{21}$$

$$x = 3 + \sqrt{21}, y = -\sqrt{21}$$

$$x = 3 - \sqrt{21}, y = \sqrt{21}$$