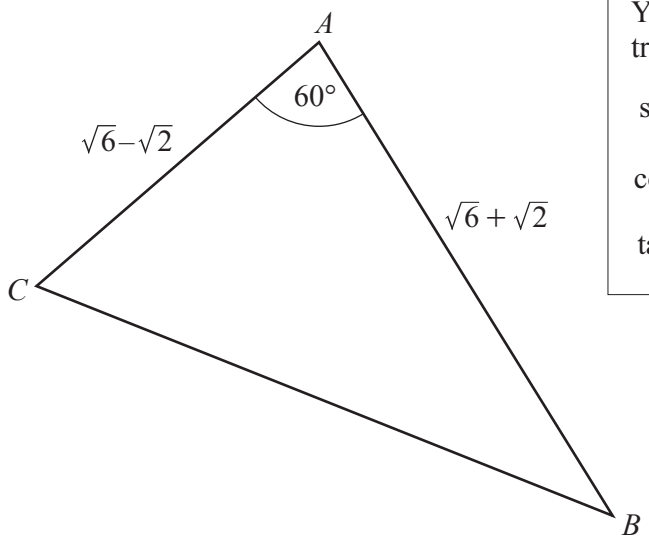
6 DO NOT USE A CALCULATOR IN THIS QUESTION.
All lengths in this question are in centimetres.



You may use the following trigonometrical ratios.

$\sin 60° = \frac{\sqrt{3}}{2}$

$\cos 60° = \frac{1}{2}$

$\tan 60° = \sqrt{3}$

The diagram shows triangle ABC with $AC = \sqrt{6} - \sqrt{2}$, $AB = \sqrt{6} + \sqrt{2}$ and angle $CAB = 60°$.

(a) Find the exact length of BC. [3]

(b) Show that $\sin ACB = \frac{\sqrt{6} + \sqrt{2}}{4}$. [2]

(c) Show that the perpendicular distance from A to the line BC is 1. [2]

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7 It is given that $\frac{d^2y}{dx^2} = e^{2x} + \frac{1}{(x+1)^2}$ for $x > -1$.

(a) Find an expression for $\frac{dy}{dx}$ given that $\frac{dy}{dx} = 2$ when $x = 0$. [3]

(b) Find an expression for y given that $y = 4$ when $x = 0$. [3]