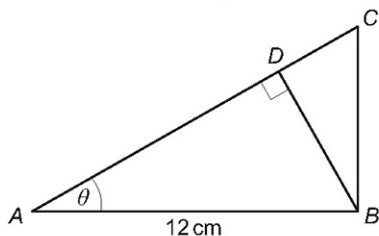


12

In the triangle ABC , the length of $AB = 12$ cm and the angle ABC is a right angle.

The point D lies on AC such that BD is perpendicular to AC as shown in the diagram.



12 (a)

Show that $AC = \frac{12}{\cos \theta}$

[1 mark]

12 (b)

Write down an expression for AD in terms of $\cos \theta$

[1 mark]

12 (c)

Hence show that $CD = \frac{12 - 12\cos^2 \theta}{\cos \theta}$

[2 marks]

12 (d)

It is given that $CD = 8\sqrt{3}$ cm

Find the value of θ

Give your answer to the nearest degree.

Fully justify your answer.

[5 marks]