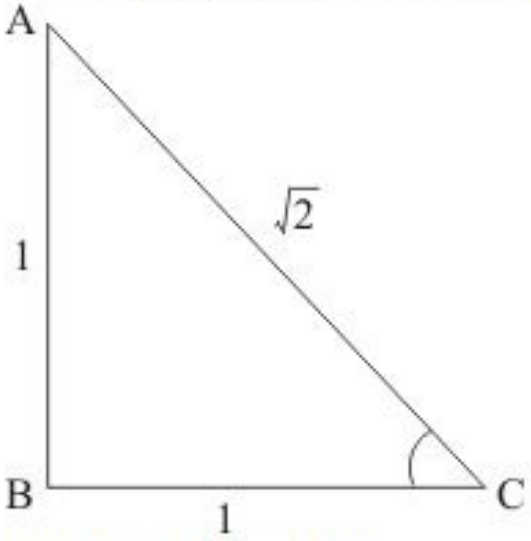
Trigonometric Identities Ex 6.2 Q2

Answer :

Given: $\sin\theta = \frac{1}{\sqrt{2}}$

We have to find all the trigonometric ratios.

We have the following right angle triangle.



From the above figure,

$$\text{Base} = \sqrt{\text{Hypotenuse}^2 - \text{Perpendicular}^2}$$

$$\Rightarrow BC = \sqrt{AC^2 - AB^2}$$

$$\Rightarrow BC = \sqrt{(\sqrt{2})^2 - 1^2}$$

$$\Rightarrow BC = 1$$

$$\cos\theta = \frac{BC}{AC} = \frac{1}{\sqrt{2}}$$

$$\operatorname{cosec}\theta = \frac{AC}{AB} = \frac{\sqrt{2}}{1} = \sqrt{2}$$

$$\sec\theta = \frac{AC}{BC} = \frac{\sqrt{2}}{1} = \sqrt{2}$$

$$\tan\theta = \frac{AB}{BC} = \frac{1}{1} = 1$$

$$\cot\theta = \frac{BC}{AB} = \frac{1}{1} = 1$$

********** END **********