



$$\text{Now, } \cot A = \frac{1}{\tan A}$$

Therefore,

$$\cot A = \frac{\text{Base}}{\text{Perpendicular}}$$

$$\cot A = \frac{4}{3}$$

$$\text{(iii) Given: } \tan \theta = \frac{11}{1} \dots\dots (1)$$

By definition,

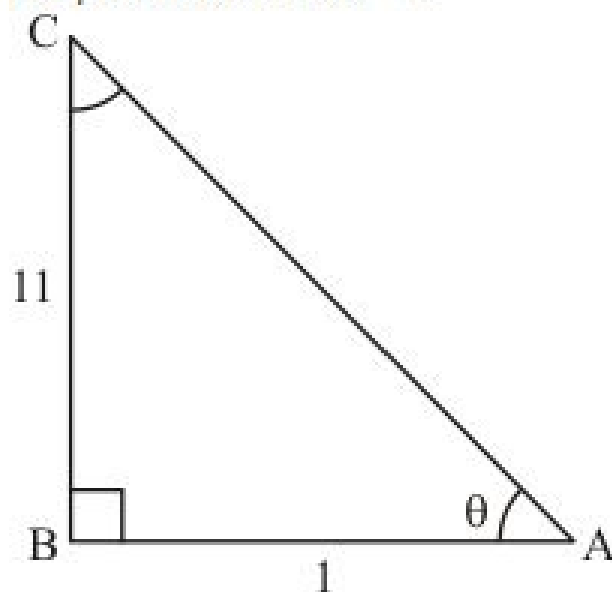
$$\tan \theta = \frac{\text{Perpendicular}}{\text{Base}} \dots\dots (2)$$

By Comparing (1) and (2)

We get,

Base = 1 and

Perpendicular side = 11



Therefore,

By Pythagoras theorem,

$$AC^2 = AB^2 + BC^2$$

Now we substitute the value of base side (AB) and the perpendicular side (BC) and get hypotenuse (AC)

$$AC^2 = 1^2 + 11^2$$

$$AC^2 = 1 + 121$$

$$AC^2 = 122$$

$$AC = \sqrt{122}$$

Hence, Hypotenuse = $\sqrt{122}$

$$\text{Now, } \sin \theta = \frac{\text{Perpendicular}}{\text{Hypotenuse}}$$

Therefore,

$$\sin \theta = \frac{11}{\sqrt{122}}$$

$$\text{Now, } \operatorname{cosec} \theta = \frac{1}{\sin \theta}$$

Therefore,

$$\operatorname{cosec} \theta = \frac{\text{Hypotenuse}}{\text{Perpendicular}}$$

$$\operatorname{cosec} \theta = \frac{\sqrt{122}}{11}$$

$$\text{Now, } \cos \theta = \frac{\text{Base}}{\text{Hypotenuse}}$$

Therefore,

$$\cos \theta = \frac{1}{\sqrt{122}}$$

$$\text{Now, } \sec \theta = \frac{1}{\cos \theta}$$

Therefore,

$$\sec \theta = \frac{\text{Hypotenuse}}{\text{Base}}$$

$$\sec \theta = \frac{\sqrt{122}}{1}$$

$$\sec \theta = \sqrt{122}$$

$$\text{Now, } \cot \theta = \frac{1}{\tan \theta}$$

Therefore,

$$\cot \theta = \frac{\text{Base}}{\text{Perpendicular}}$$

$$\cot \theta = \frac{1}{11}$$

(iv) Given: $\sin \theta = \frac{11}{15}$ (1)

By definition,

$$\sin \theta = \frac{\text{Perpendicular}}{\text{Hypotenuse}} \text{ (2)}$$

By Comparing (1) and (2)

We get,

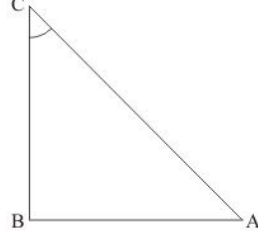
Perpendicular side = 11 and

Hypotenuse = 15

Therefore,

By Pythagoras theorem,

$$AC^2 = AB^2 + BC^2$$



Now we substitute the value of perpendicular side (BC) and hypotenuse (AC) and get the base side (AB)

$$15^2 = AB^2 + 11^2$$

$$AB^2 = 15^2 - 11^2$$

$$AB^2 = 225 - 121$$

$$AB^2 = 104$$

$$AB = \sqrt{104}$$

$$AB = \sqrt{2 \times 2 \times 2 \times 13}$$

$$AB = 2\sqrt{2 \times 13}$$

$$AB = 2\sqrt{26}$$

Hence, Base = $2\sqrt{26}$

Now, $\cos \theta = \frac{\text{Base}}{\text{Hypotenuse}}$

Therefore,

$$\cos \theta = \frac{2\sqrt{26}}{15}$$

Now, $\operatorname{cosec} \theta = \frac{1}{\sin \theta}$

$$\sin \theta$$

Therefore,

$$\operatorname{cosec} \theta = \frac{\text{Hypotenuse}}{\text{Perpendicular}}$$

$$\operatorname{cosec} \theta = \frac{15}{11}$$

$$\text{Now, } \sec \theta = \frac{\text{Hypotenuse}}{\text{Base}}$$

***** END *****