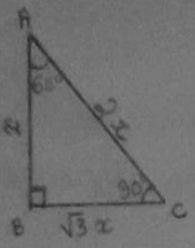
Assignment

Find the value of tan 30°, 45° and 60° without looking trigonometric value chart.

Finding value of tan 30°,

$\tan = \frac{\text{opposite side}}{\text{adjacent side}}$, Consider ΔABC,



Angles = 30° : 60° : 90°

Ratio = 1 : $\sqrt{3}$: 2

Giving value 'x' as AB
(opposite side of ∠30°)

Ratio = 1 : $\sqrt{3}$: 2

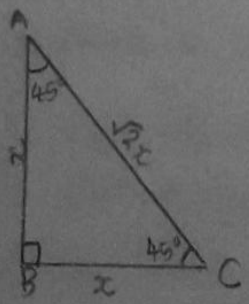
= $x : \sqrt{3}x : 2x$

$\text{Tan } 30° = \frac{x}{\sqrt{3}x} = \frac{1}{\sqrt{3}}$

Value of tan 30° = $\frac{1}{\sqrt{3}}$

Finding value of 45 tan 45°,

$\tan = \frac{\text{opposite side}}{\text{adjacent side}}$ Consider ΔABC,



Angles = 45°, 45°, 90°

Ratio = 1 : 1 : $\sqrt{2}$

AB = x

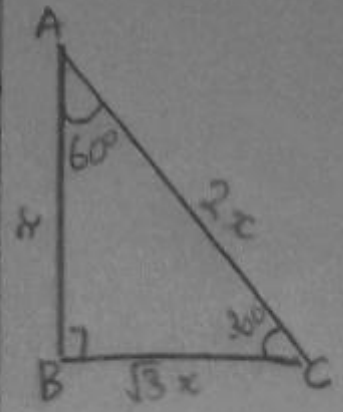
Ratio = $x : x : \sqrt{2}x$

$\text{Tan } 45° = \frac{AB}{AC} = \frac{x}{x} = 1$

Value of tan 45° = 1

Finding value of tan 60°,

$$\tan = \frac{\text{opposite side}}{\text{adjacent side}}$$



Consider ΔABC,

Angles = 30°, 60°, 90°

Ratio = $1 : \sqrt{3} : 2$

$AB = x$

Ratio = $1 : \sqrt{3} : 2$

$= x : \sqrt{3}x : 2$

$$\text{Tan } 60° = \frac{\sqrt{3}x}{x} = \frac{\sqrt{3}}{1} = \sqrt{3}$$

Value of Tan 60° = $\sqrt{3}$