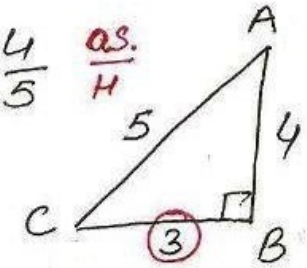
① $\cos A = \frac{4}{5}$ $\frac{\text{adj.}}{H}$



$AB = \sqrt{5^2 - 4^2}$

$= \sqrt{9}$

$= 3$

$\tan A = \frac{\text{opp. side}}{\text{adj. side}} = \frac{3}{4}$

(B)

⑤ $\cos(\alpha+\beta) = 0$

$\Rightarrow \alpha+\beta = 90^\circ$ $[\because \cos 90^\circ = 0]$

$\Rightarrow \alpha = 90^\circ - \beta \ldots (1)$

$\sin(\alpha-\beta)$

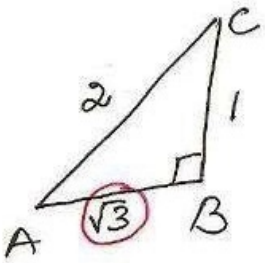
$= \sin(90 - \beta - \beta)$ (using (i))

$= \sin(90^\circ - 2\beta)$

$= \cos 2\beta$ $[\because \sin(90^\circ - \theta) = \cos\theta]$

NCERT Exemplar Solutions by Dev Anoop (Bathinda)

② If $\sin A = \frac{1}{2}$ $\frac{\text{O.S}}{H}$



$AB = \sqrt{3}$

$\cot A = \frac{\text{adj. side}}{\text{opp side}} = \frac{\sqrt{3}}{1}$

(A)

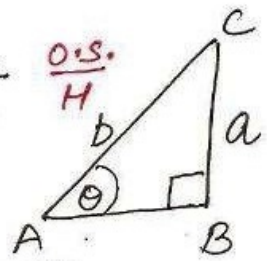
③ $\text{cosec}(75+\theta) - \sec(15-\theta) - \tan(55+\theta) + \cot(35-\theta)$

$= \sec(90-75-\theta) - \sec(15-\theta) - \cot(90-55-\theta) + \cot(35-\theta)$

$= \sec(15-\theta) - \sec(15-\theta) - \cot(35-\theta) + \cot(35-\theta)$

$= 0$ (B)

④ $\sin\theta = \frac{a}{b}$ $\frac{\text{O.S.}}{H}$



$AB = \sqrt{b^2 - a^2}$

$\cos\theta = \frac{\text{adj. side}}{H}$

$= \frac{\sqrt{b^2-a^2}}{b}$ (C)