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कक्षा - 10

Chapter - 8

Introduction Of Trigonometry

त्रिकोणमिति का परिचय

वस्तुनिष्ठ, रिक्तस्थान एवं लघुत्तरात्मक प्रश्न

REVISION WITH QUESTIONS

Lakhan Saini

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त्रिकोणमिति का परिचय

कुल अंकभार 8		
प्रश्न	अंक	प्रकार
1	1	वस्तुनिष्ठ प्रश्न
1	1	रिक्तस्थान
1	2	लघुत्तरात्मक प्रश्न
1	4	निबंधात्मक प्रश्न

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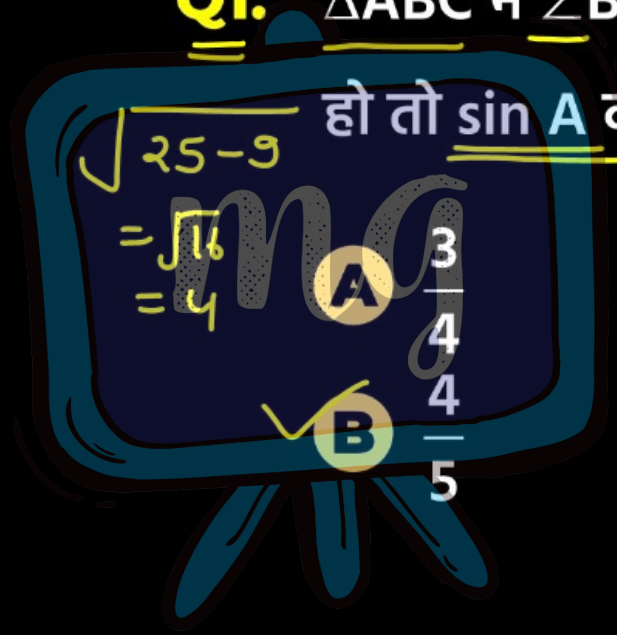
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वस्तुनिष्ठ प्रश्न

Q1. $\triangle ABC$ में $\angle B$ समकोण है तथा $\cos A = \frac{3}{5}$ हो तो $\sin A$ का मान होगा-

(L A L
K K A)

$\sqrt{25-9}$
$= \sqrt{16}$
$= 4$

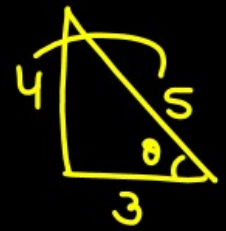


(A) $\frac{3}{4}$

(B) $\frac{4}{5}$

(C) $\frac{5}{4}$

(D) $\frac{5}{3}$

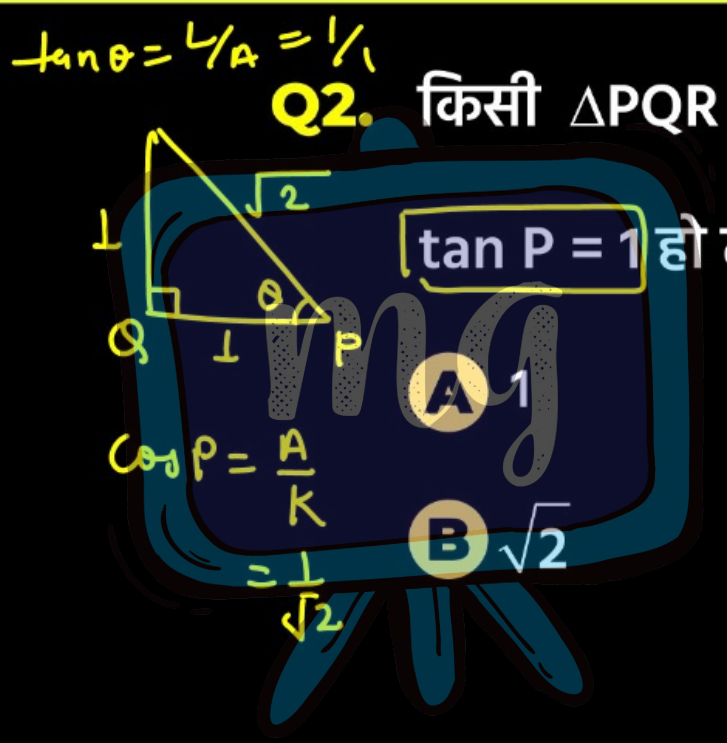


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Q2. किसी $\triangle PQR$ में $\angle Q = 90°$ हो तथा $\tan P = 1$ हो तो $\cos P$ का मान होगा-

(A) 1

(B) $\sqrt{2}$

(C) 1/2

(D) कोई नहीं

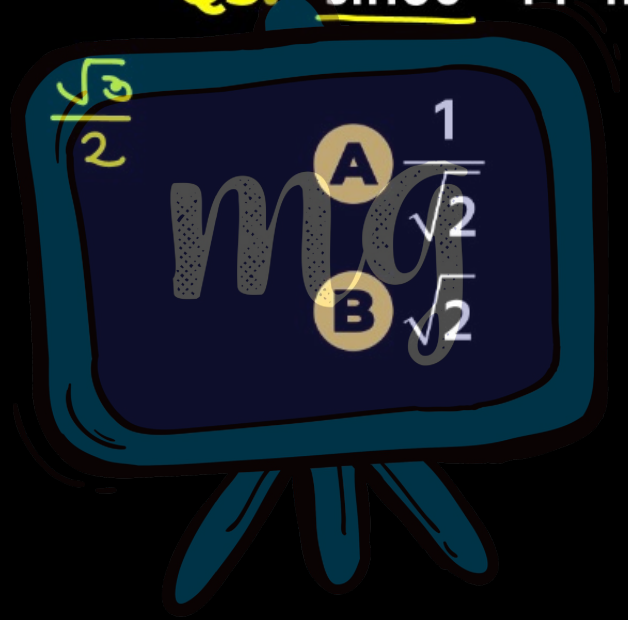
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Q3. sin60° का मान होता है-



C $\frac{\sqrt{3}}{2}$

D $\frac{2}{\sqrt{3}}$

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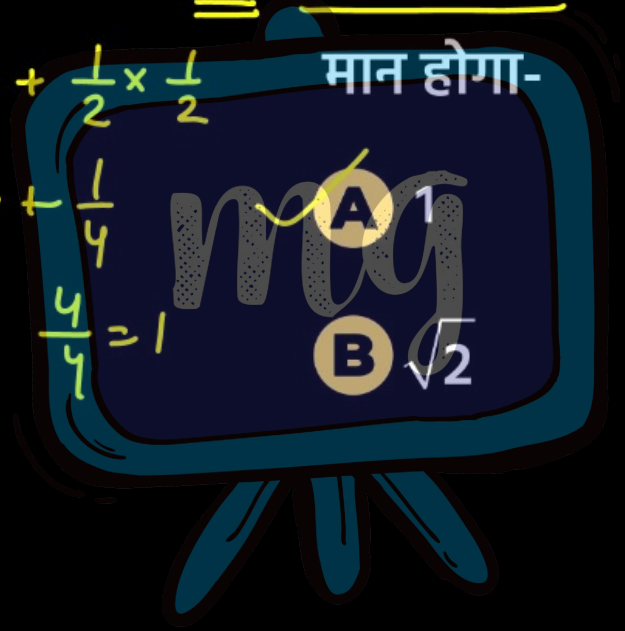
वस्तुनिष्ठ प्रश्न

Q4. $\sin 60° \cos 30° + \sin 30° \cos 60°$ का मान होगा-

$\frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} + \frac{1}{2} \times \frac{1}{2}$

$\frac{3}{4} + \frac{1}{4}$

$\frac{4}{4} = 1$



(A) 1

(B) $\sqrt{2}$

(C) 0

(D) $\frac{1}{\sqrt{2}}$

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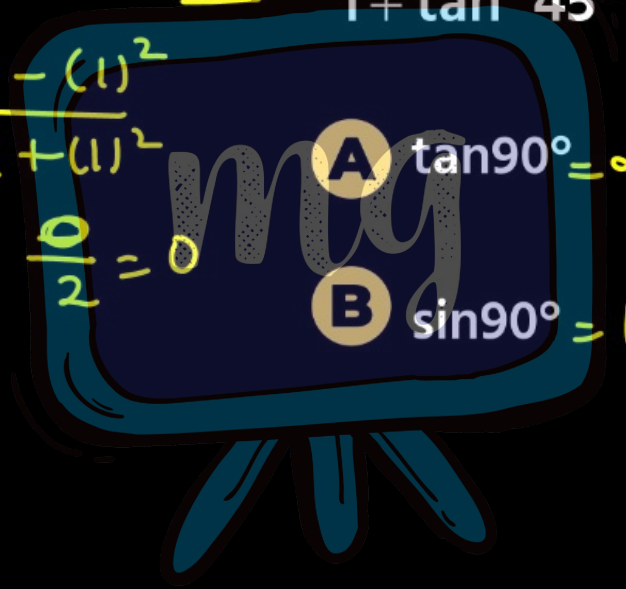
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$\tan 45° = 1$

Q5. $\dfrac{1 - \tan^2 45°}{1 + \tan^2 45°}$ का मान होगा-

$\dfrac{1-(1)^2}{1+(1)^2}$

$\dfrac{0}{2} = 0$



(A) $\tan 90° = \infty$

(B) $\sin 90° = 1$

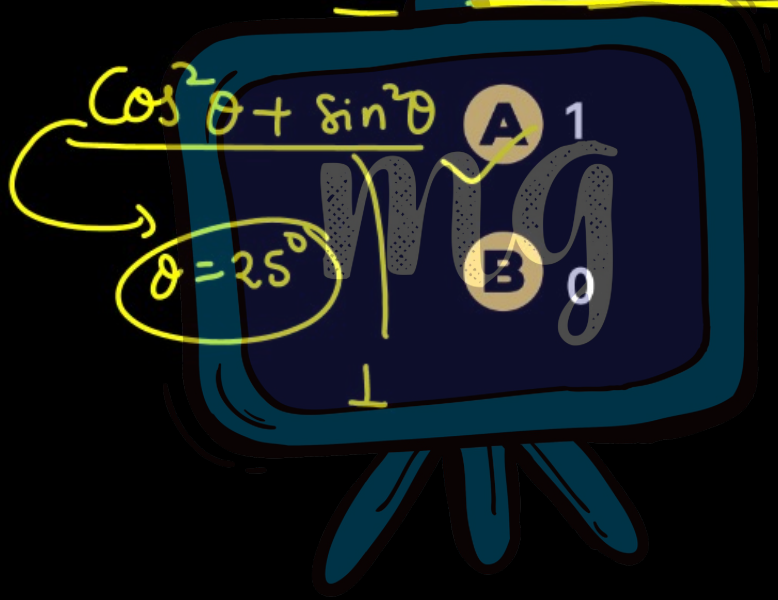
(C) $\cos 90° = 0$

(D) $\sin 45° = \frac{1}{\sqrt{2}}$

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वस्तुनिष्ठ प्रश्न

Q6. $\cos^2 25° + \sin^2 25°$ का मान होगा-



(A) 1

(B) 0

(C) 25

(D) $2\cos^2 25°$

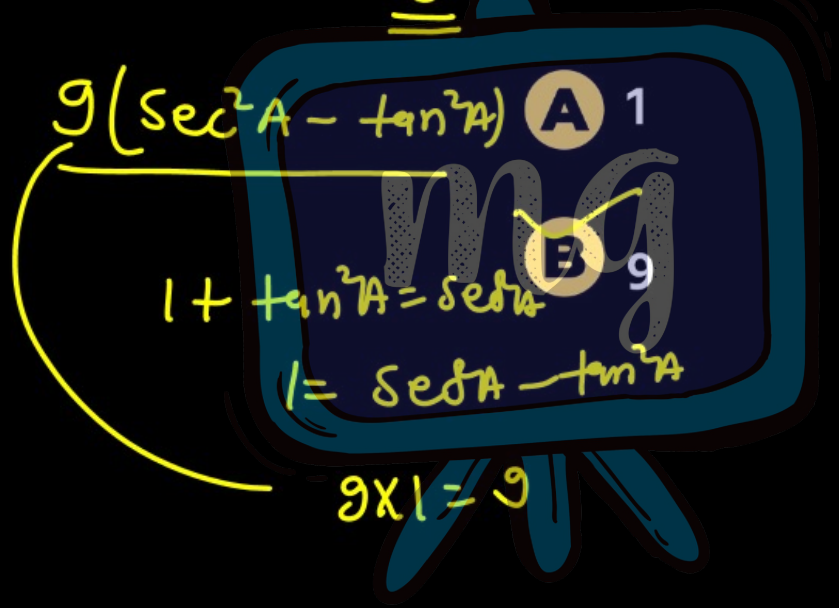
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Q7. $9\sec^2 A - 9\tan^2 A$ बराबर है-



(A) 1

(B) 9

(C) 8

(D) −1

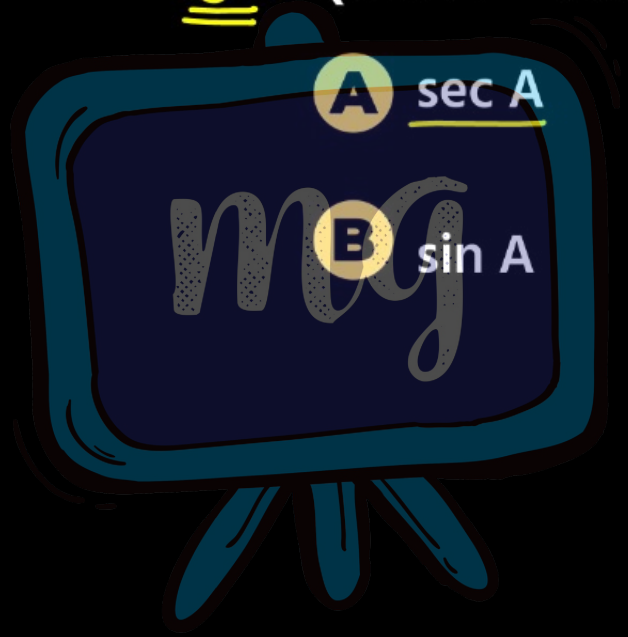
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Q8. (sec A + tanA) (1 – sinA) बराबर है-



(A) sec A

(B) sin A

(C) cosec A

(D) cos A

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$$\sec A = \frac{1}{\cos A}$$

$$\tan A = \frac{\sin A}{\cos A}$$

$$(\sec A + \tan A)(1 - \sin A)$$

$$\left(\frac{1+\sin A}{\cos A}\right)(1-\sin A)$$

$$\frac{1^2 - \sin^2 A}{\cos A} = \frac{\cos^2 A}{\cos A}$$

$$= \cos A$$

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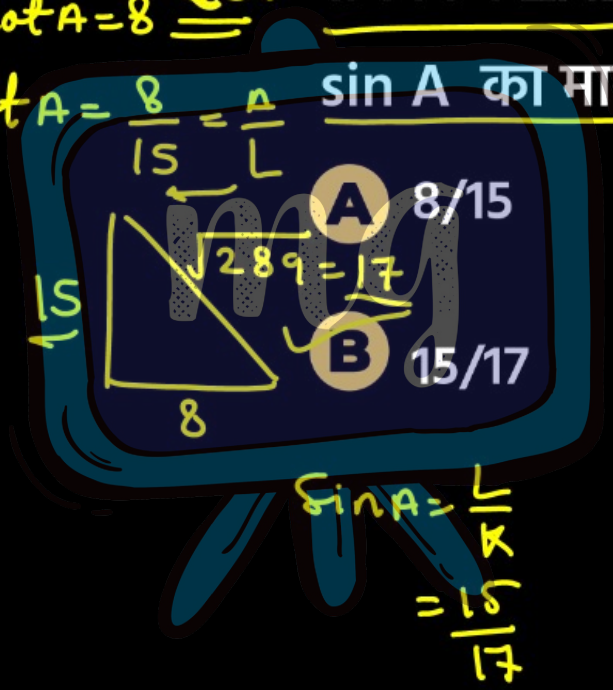
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Q9. समकोण $\triangle ABC$ में $15 \cot A = 8$ हो तो $\sin A$ का मान होगा-

$15 \cot A = 8$

$\cot A = \frac{8}{15} = \frac{A}{L}$



$\sin A = \frac{L}{K} = \frac{15}{17}$

(A) 8/15

(B) 15/17

(C) 8/17

(D) 1

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वस्तुनिष्ठ प्रश्न

Q10. $\dfrac{2\tan 30^\circ}{1+\tan^2 30^\circ}$ बराबर है-

$\dfrac{2\left(\frac{1}{\sqrt{3}}\right)}{1+\left(\frac{1}{\sqrt{3}}\right)^2}$

$= \dfrac{2\left(\frac{1}{\sqrt{3}}\right)}{\left(1+\frac{1}{3}\right)}$

$= \dfrac{2\left(\frac{1}{\sqrt{3}}\right)}{\left(\frac{4}{3}\right)} = \dfrac{2\times 3\sqrt{3}}{\sqrt{3}\times 4_2}$

$= \dfrac{\sqrt{3}}{2}$

(A) $\sin 60^\circ = \dfrac{\sqrt{3}}{2}$

(B) $\cos 60^\circ = \dfrac{1}{2}$

(C) $\tan 60^\circ = \sqrt{3}$

(D) $\sin 30^\circ = \dfrac{1}{2}$

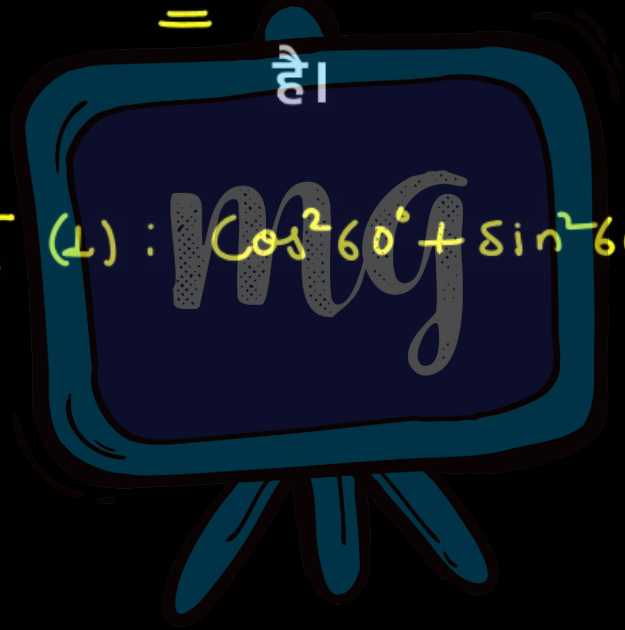
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रिक्तस्थान प्रश्न

1. $\cos^2 60° + \sin^2 60°$ का हल .....1.....
है।



हल (1) : $\cos^2 60° + \sin^2 60°$ का हल .....1.....है।

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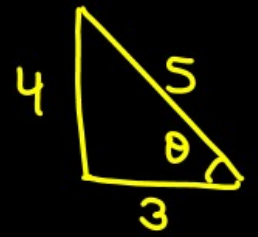
2. यदि $\sin\theta = \frac{4}{5}$ हो तो $\cos\theta$ = ...$\frac{3}{5}$.....

होता है।

mg

2) यदि $\sin\theta = \frac{4}{5}$ हो तो $\cos\theta = -\frac{3}{5}$

होगा है।



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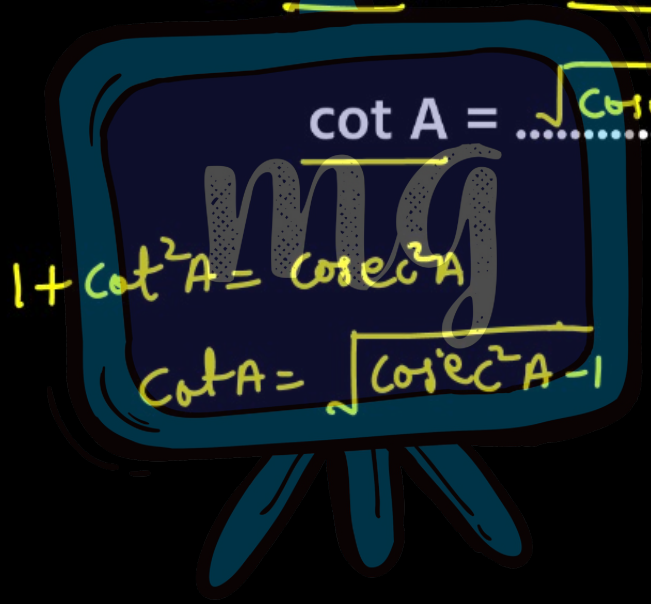
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3. cot A को cosec A के पदों में लिखने पर

cot A = $\sqrt{\text{cosec}^2A - 1}$ ..... होता है।



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4. $\tan 30° \tan 60°$ का मान .....1.....

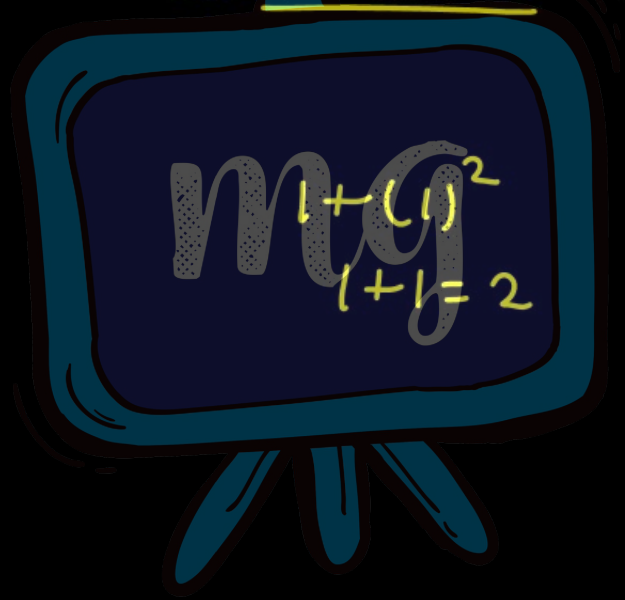


$\tan 30° \tan 60° = \frac{1}{\sqrt{3}} \times \sqrt{3} = 1$

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रिक्तस्थान प्रश्न

5. $1 + \tan^2 45°$ का हल .....2..... हैं।



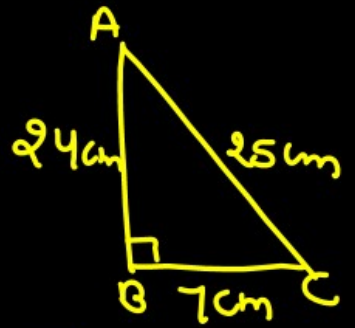
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लघुत्तरात्मक प्रश्न

Q1. किसी $\triangle ABC$ में AB = 24 सेमी, BC = 7 सेमी तथा $\angle B = 90°$ है तो sin A व sin C का मान ज्ञात कीजिए।



हल :- $\triangle ABC$ में, $\angle B = 90°$

पाइथागोरस प्रमेय से

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

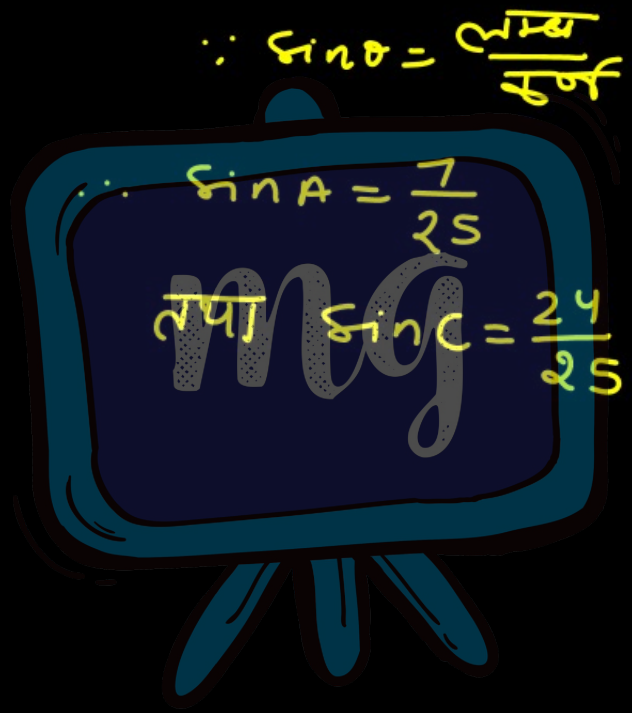
$\Rightarrow AC^2 = (24)^2 + (7)^2$

$\Rightarrow AC = \sqrt{576+49} = \sqrt{625} = 25$

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लघुत्तरात्मक प्रश्न

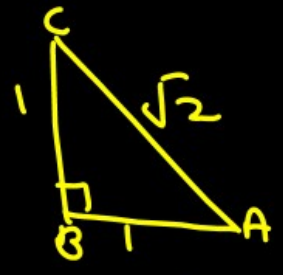
Q2. एक समकोण $\triangle ABC$ में, जिसका कोण B समकोण है, यदि $\tan A = 1$ हो तो सत्यापित कीजिए-

$2\sin A \cos A = 1$

हल :- $\triangle ABC$ में, $\angle B = 90^\circ$

तथा $\tan A = 1$

$\frac{\text{लम्ब}}{\text{आधार}} = \frac{1}{1}$



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∴ माना आधार = लम्ब = 1 इकाई

अत: कर्ण = $\sqrt{(\text{लं०})^2+(\text{आ०})^2}$

$= \sqrt{1+1} = \sqrt{2}$

∴ $2\sin A\cos A = 2\left(\frac{1}{\sqrt{2}}\right)\left(\frac{1}{\sqrt{2}}\right)$

$= 2\times\frac{1}{2}$

$= 1$

अत: $2\sin A\cos A = 1$

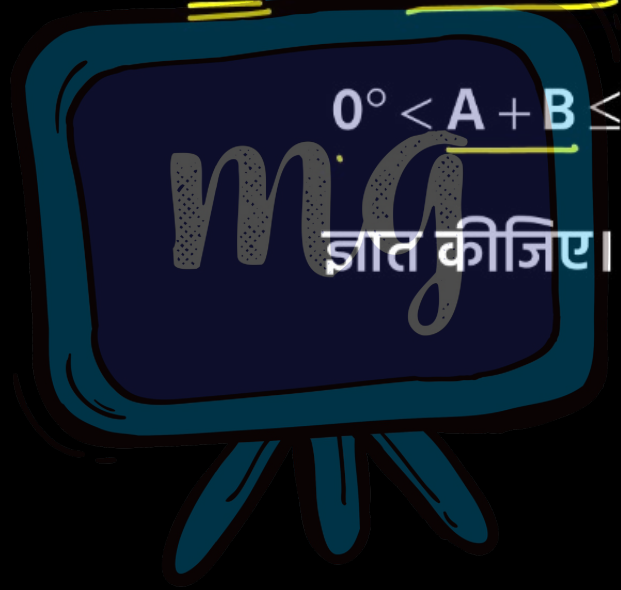
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Q3. यदि $\sin(A-B)=\frac{1}{2}, \cos(A+B)=\frac{1}{2}$, $0^\circ < A+B \leq 90^\circ, A > B$ तो A और B ज्ञात कीजिए।



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हल :- $\because \quad \sin(A-B) = \frac{1}{2}$

$\Rightarrow \quad \sin(A-B) = \sin 30^\circ$

$\Rightarrow \quad A - B = 30^\circ \quad \text{——— (1)}$

तथा $\cos(A+B) = \frac{1}{2}$

$\cos(A+B) = \cos 60^\circ$

$A + B = 60^\circ \quad \text{——— (2)}$

समी (1) व समी (2) से –

$2A = 90^\circ \Rightarrow A = 45^\circ$

तथा $B = 15^\circ$

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Q4. $\dfrac{\cos 45^\circ}{\sec 30^\circ + \cos 30^\circ}$ का मान ज्ञात कीजिए।

हल :- $\cos 45^\circ = 1/\sqrt{2}$

तथा $\sec 30^\circ + \cos 30^\circ = \dfrac{2}{\sqrt{3}} + \dfrac{\sqrt{3}}{2}$

$= \dfrac{4+3}{2\sqrt{3}} = \dfrac{7}{2\sqrt{3}}$

$\therefore \dfrac{\cos 45^\circ}{\sec 30^\circ + \cos 30^\circ} = \dfrac{1/\sqrt{2}}{7/2\sqrt{3}} = \dfrac{\sqrt{2}\,2\sqrt{3}}{7\sqrt{2}}$

$= \dfrac{\sqrt{6}}{7}$

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Q5. यदि $\sin 3x = 1$ हो तो x का मान ज्ञात कीजिए।



हल :- $\sin 3x = 1$

$\Rightarrow \sin 3x = \sin 90^\circ$

$3x = 90^\circ$

$\boxed{x = 30^\circ}$

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