
CHAPTER
ZERO

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गणित - 1

1. संबंध एवं फलन
2. प्रतिलोम त्रिकोणमितीय फलन
3. आव्यूह
4. सारणिक
5. सांतत्य तथा अवकलनीयता
6. अवकलज के अनुप्रयोग

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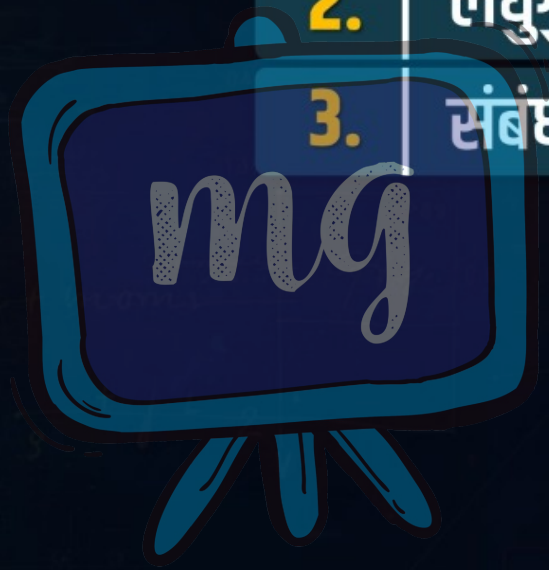
गणित - 2

7.	समाकलन
8.	समाकलनों के अनुप्रयोग
9.	अवकल समीकरण
10.	सदिश बीजगणित
11.	त्रि-विमीय ज्यामिति
12.	रैखिक प्रोग्रामन
13.	प्रायिकता

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1. त्रिकोणमितिय फलन
2. लघुगुणक फलन
3. संबंध एवं फलन



1. त्रिकोणमितिय फलन

$\sin\theta = \frac{L}{K}$

$\cos\theta = \frac{A}{K}$

$\tan\theta = \frac{L}{A}$

$\cot\theta = \frac{A}{L}$

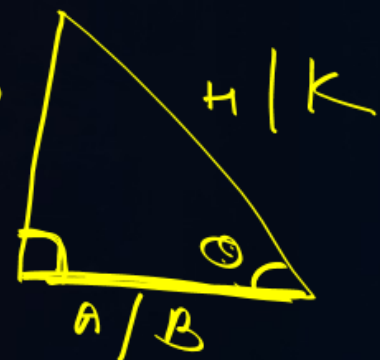
$\operatorname{Cosec}\theta = \frac{K}{L}$

$\sec\theta = \frac{K}{A}$

$\sin^2\theta + \cos^2\theta = 1$

$1 + \tan^2\theta = \sec^2\theta$

$1 + \cot^2\theta = \operatorname{Cosec}^2\theta$



LAL / KKA

PBP / HHB

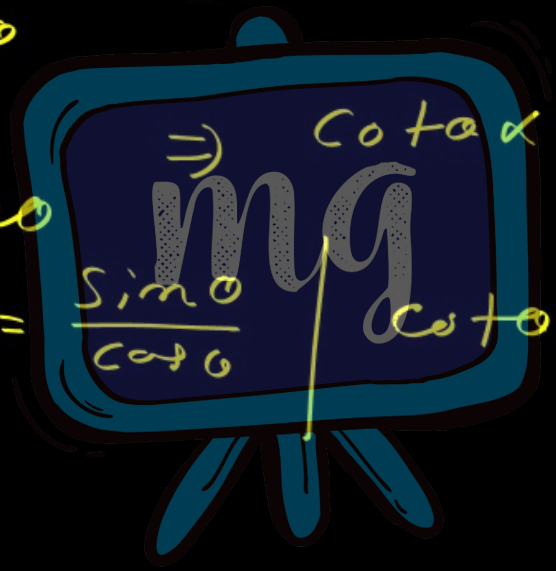
SCT

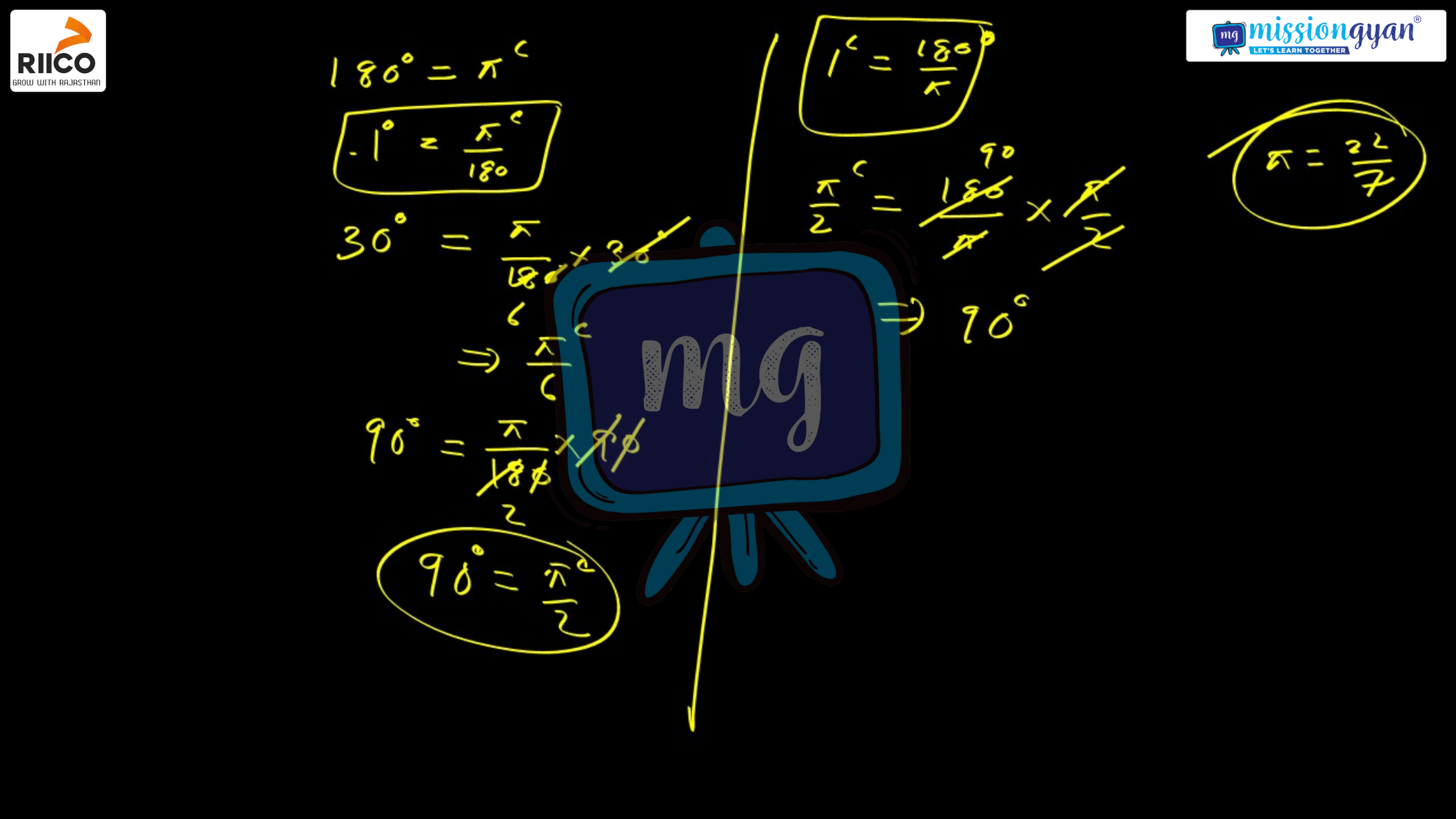
$$\sin\theta = \frac{1}{\operatorname{cosec}\theta} \Rightarrow \sin\theta \times \operatorname{cosec}\theta = 1$$

$$\cos\theta = \frac{1}{\sec\theta} \Rightarrow \cos\theta \times \sec\theta = 1$$

$$\cot\theta = \frac{1}{\tan\theta} \Rightarrow \cot\theta \times \tan\theta = 1$$

$$\tan\theta = \frac{\sin\theta}{\cos\theta} \qquad \cot\theta = \frac{\cos\theta}{\sin\theta}$$

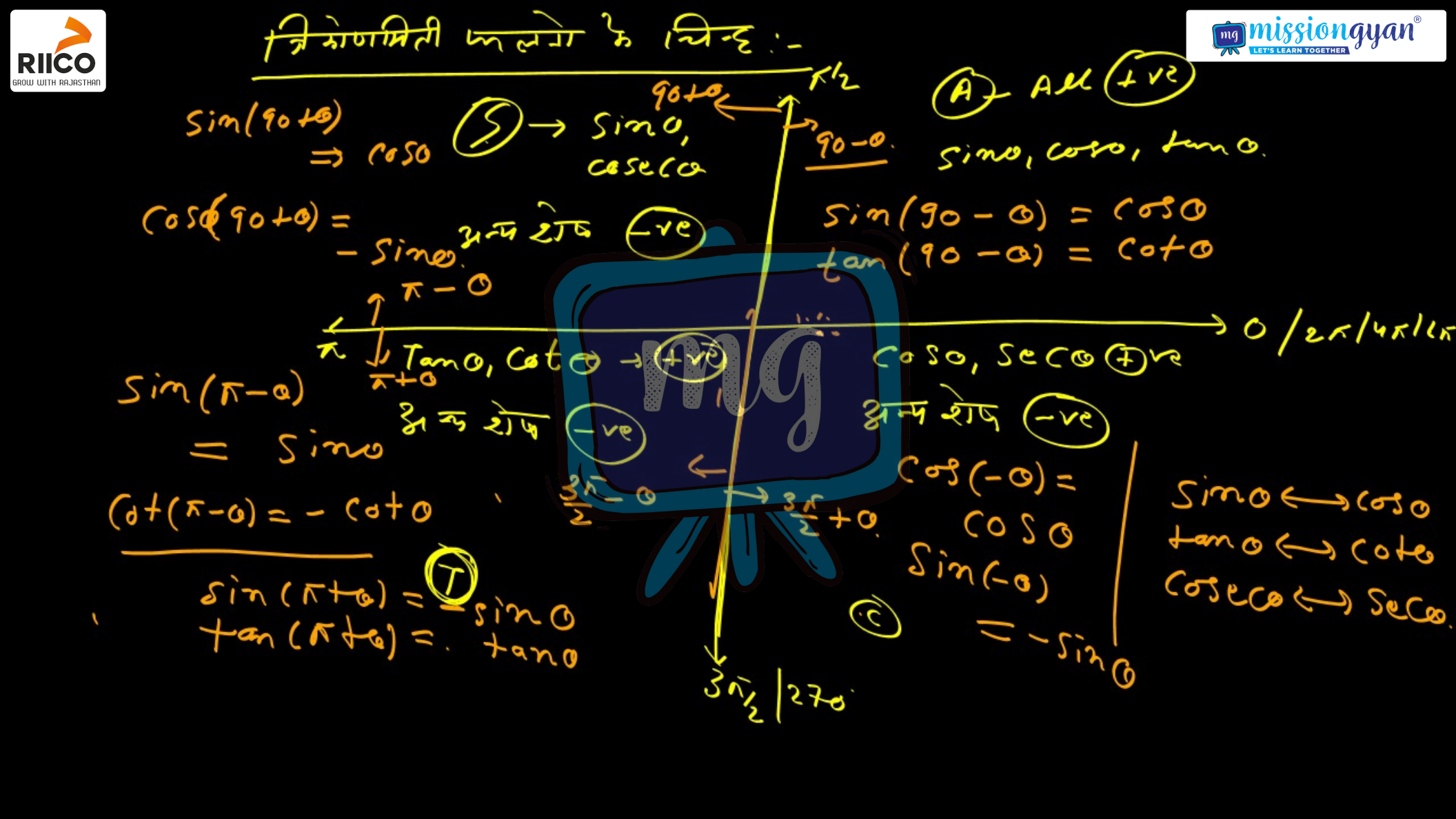



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$180^\circ = \pi^c$
$1^\circ = \frac{\pi^c}{180}$
$1^c = \frac{180^\circ}{\pi}$
$\pi = \frac{22}{7}$
$30^\circ = \frac{\pi}{180} \times 30$
$\Rightarrow \frac{\pi}{6}^c$
$\frac{\pi}{2}^c = \frac{180}{\pi} \times \frac{\pi}{2}$
$\Rightarrow 90^\circ$
$90^\circ = \frac{\pi}{180} \times 90$
$90^\circ = \frac{\pi}{2}^c$

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त्रिकोणमिति फलनों के चिन्ह :-



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महत्वपूर्ण सूत्र :-

योग व अन्तर =

$$\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$$

$$\tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

2A वाले सूत्र :-

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

$$\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

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$\cos 2A = \cos^2 A - \sin^2 A$

$\Rightarrow \cos 2A = \cos^2 A - (1 - \cos^2 A)$

$\Rightarrow \cos 2A = \cos^2 A - 1 + \cos^2 A$

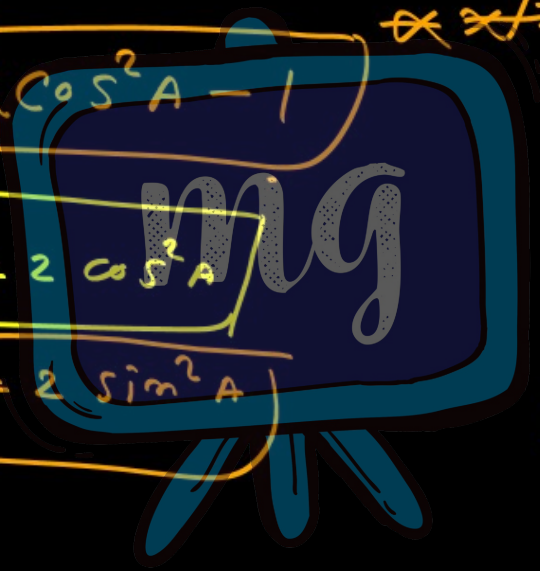
$\cos 2A = 2\cos^2 A - 1$

$1 + \cos 2A = 2\cos^2 A$

$1 - \cos 2A = 2\sin^2 A$

$\cos 2A = 1 - 2\sin^2 A$ **

$2\sin^2 A = 1 - \cos 2A$



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

$$\Rightarrow (\sin A + \cos A)^2$$

$$1 + \sin 2A \Rightarrow (\cos A + \sin A)^2$$

$$1 - \sin 2A = (\sin A - \cos A)^2$$

$$\Rightarrow (\cos A - \sin A)^2$$

$1 + \cos 2A = 2\cos^2 A$

$1 - \cos 2A = 2\cos^2 A$

$\cos 2A = \cos^2 A - \sin^2 A$

$1 + \cos A = 2\cos^2 A/2$

$1 - \cos A = 2\sin^2 A/2$

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



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2. लघुगुणक फलन



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3. संबंध एवं फलन

