SSC CGL/CHSL TIER 2 (CRASH COURSE)

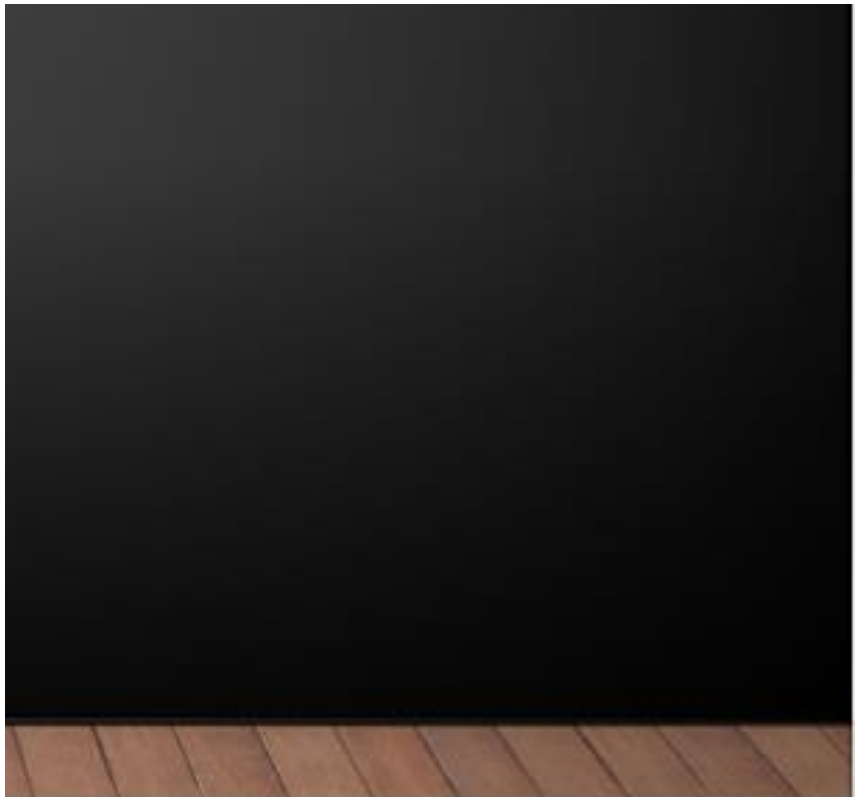
Trigonometric Identities

- $\sin(A + B) = \sin A \cos B + \cos A \sin B$
- $\sin(A - B) = \sin A \cos B - \cos A \sin B$
- $\cos(A + B) = \cos A \cos B - \sin A \sin B$
- $\cos(A - B) = \cos A \cos B + \sin A \sin B$
- $\tan(A+B) = \dfrac{\tan A + \tan B}{1 - \tan A \tan B}$
- $\tan(A-B) = \dfrac{\tan A - \tan B}{1 + \tan A \tan B}$
- $\sin(A + B)\sin(A - B) = \sin^2 A - \sin^2 B = \cos^2 B - \cos^2 A$
- $\cos(A + B)\cos(A - B) = \cos^2 A - \sin^2 B = \cos^2 B - \sin^2 A.$
- $\sin 2A = 2\sin A \cos A = \dfrac{2\tan A}{1 + \tan^2 A}$
- $\cos 2A = \cos^2 A - \sin^2 A = 1 - 2\sin^2 A = 2\cos^2 A - 1 = \dfrac{1 - \tan^2 A}{1 + \tan^2 A}$
- $\tan 2A = \dfrac{2\tan A}{1 - \tan^2 A}$
- $\sin 3A = 3\sin A - 4\sin^3 A = 4\sin(60^\circ - A)\sin A \sin(60^\circ + A)$
- $\cos 3A = 4\cos^3 A - 3\cos A = 4\cos(60^\circ - A)\cos A \cos(60^\circ + A)$
- $\tan 3A = \dfrac{3\tan A - \tan^3 A}{1 - 3\tan^2 A} = \tan(60^\circ - A)\tan A \tan(60^\circ + A)$

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

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

(3) $1 + \cot^2\theta = \operatorname{cosec}^2\theta$



For any angles A, B, C

- $\sin(A + B + C) = \sin A \cos B \cos C + \cos A \sin B \cos C + \cos A \cos B \sin C - \sin A \sin B \sin C$
- $\cos(A + B + C) = \cos A \cos B \cos C - \cos A \sin B \sin C - \sin A \cos B \sin C - \sin A \sin B \cos C$
- $\tan(A + B + C) = \dfrac{\tan A + \tan B + \tan C - \tan A \tan B \tan C}{1 - \tan A \tan B - \tan B \tan C - \tan A \tan C}$;
- $\cot(A + B + C) = \dfrac{\cot A \cot B \cot C - \cot A - \cot B - \cot C}{\cot A \cot B + \cot B \cot C + \cot A \cot C - 1}$

If A, B, C are angles of a triangle (or A + B + C = π):

- $\sin A \cos B \cos C + \cos A \sin B \cos C + \cos A \cos B \sin C = \sin A \sin B \sin C$
- $\cos A \sin B \sin C + \sin A \cos B \sin C + \sin A \sin B \cos C = 1 + \cos A \cos B \cos C$
- $\tan A + \tan B + \tan C = \tan A \tan B \tan C$
- $\cot B \cot C + \cot C \cot A + \cot A \cot B = 1$
- $\tan\frac{B}{2}\tan\frac{C}{2} + \tan\frac{C}{2}\tan\frac{A}{2} + \tan\frac{A}{2}\tan\frac{B}{2} = 1$
- $\cot\frac{A}{2} + \cot\frac{B}{2} + \cot\frac{C}{2} = \cot\frac{A}{2}\cot\frac{B}{2}\cot\frac{C}{2}$
- $\sin 2A + \sin 2B + \sin 2C = 4 \sin A \sin B \sin C$
- $\cos 2A + \cos 2B + \cos 2C = -1 - 4 \cos A \cos B \cos C$
- $\cos^2 A + \cos^2 B + \cos^2 C = 1 - 2 \cos A \cos B \cos C$
- $\sin A + \sin B + \sin C = 4 \cos\frac{A}{2}\cos\frac{B}{2}\cos\frac{C}{2}$
- $\cos A + \cos B + \cos C = 1 + 4 \sin\frac{A}{2}\sin\frac{B}{2}\sin\frac{C}{2}$

$63^0 14'51''$ into radian /रेडियन में ज्ञात करे

(1) $\frac{2811\pi}{8000}$

(2) $\frac{5811\pi}{8000}$

(3) $\frac{1811\pi}{8000}$

(4) $\frac{6811\pi}{8000}$

if tanA =5/12 then find the value of the $\frac{sinA+cosA-tanA}{secA+cosecA-cot\ A}$

(1) 995/1001

(2) 885/43

(3) 432/445

(4) Not

$\cos 25^0 = \frac{1}{\sqrt{5}}$ then find the value of $\cos 65^0 + \tan 25^0$

(1) $\frac{2+\sqrt{5}}{2\sqrt{5}}$

(2) $\frac{2+\sqrt{5}}{\sqrt{5}}$

(3) $\frac{1+\sqrt{5}}{\sqrt{5}}$

(4) $\sqrt{5}$

Sin $21^0 = \frac{x}{y}$,then find the value of sec 21^0 – sin69^0

1) $\frac{y^2}{x\sqrt{y^2-x^2}}$

2) $\frac{x^2}{x\sqrt{y^2-x^2}}$

3) $-\frac{y^2}{x\sqrt{x^2-y^2}}$

4)-not

What will be the value of / मान ज्ञात करे $(m^2+n^2)\cos^2\beta$

$\frac{\cos\alpha}{\cos\beta}=m$ and $\frac{\cos\alpha}{\sin\beta}=n$

(1) mn

(2) m^2

(3) n^2

(4) 0

In triangle /त्रिभुज ABC angle A=90^0
BC = a, AC =b ,AB =c ,then find/तो ज्ञात करे tanB +tanC = ?

(1) $\frac{a^2}{bc}$

(2) $\frac{c^2}{ab}$

(3) $\frac{b^2}{ac}$

(4) $\frac{c^2+a^2}{bc}$

What will be the value of / मान ज्ञात करे $\frac{\sin X - \cos X}{\sin X + \cos X} = \frac{17}{13}$

(1) 5/17

(2) 7/17

(3) 7/13

(4) 3/19

What will be the value of / मान ज्ञात करे tanX = ?

$7\sin^2X + 3\cos^2X = 4$

(1) $1/\sqrt{3}$

(2) $\sqrt{3}$

(3) 1

(4) 0

What will be the value of / मान ज्ञात करे

$\frac{2}{3}\text{cosec}^2 58^0 - \frac{2}{3}\cot 58^0 \tan 32^0 - \frac{5}{3}\tan 13^0 \tan 37^0 \tan 45^0 \text{ta}$

(1) 0

(2) 2

(3) 1

(4) -1

What will be the value of / मान ज्ञात करे $\sec 17^0 - \sec 73^0$

Sin 17^0 = x/y

(1) $\frac{y^2-x^2}{xy}$

(2) $\frac{x^2}{\sqrt{y^2-x^2}}$

(3) $\frac{x^2}{y\sqrt{y^2+x^2}}$

(4) not

What will be the value of / मान ज्ञात करे cos X

$$\frac{1}{cosx} - \frac{1}{cotx} = \frac{1}{p}$$

(1) $\frac{2p}{p^2+1}$

(2) $\frac{p}{p^2+1}$

(3) $\frac{p^2}{p^2+1}$

(4) 1/p

ABC is a right angle isosceles triangle ,angle A = 90^0 then find the value

$\cos^2A + \cos^2B + \cos^2C$

ABC यदि एक समद्विबाह समकोण त्रिभुज अहि A = 90^0 है ,तो मान ज्ञात करे

$\cos^2A + \cos^2B + \cos^2C$

(1) 2

(2)1

(3) 0

(4) 3

What will be the value of / मान ज्ञात करे $\frac{tan^2x+1}{tan^2x-1}$

$\frac{sinx+\cos x}{sinx-cosx}$ =5/4

(1) $\frac{40}{41}$

(2) $\frac{41}{40}$

(3) $\frac{30}{41}$

(4) $\frac{39}{41}$

What will be the value of / मान ज्ञात करे tan3x Tan7x tan2x =1

(1) $\frac{1}{\sqrt{3}}$

(2) $\sqrt{3}$

(3) 1

(4) not

What will be the value of / मान ज्ञात करे $\frac{\sqrt{1-sinx}}{\sqrt{1+sinx}}$

$\tan X = \frac{8}{15}$

(1) $1/\sqrt{3}$

(2) 3/5

(3) 2/5

(4) 0

What will be the value of / मान ज्ञात करे

$7/\sec^2 x + 3/(1+\cot^2 x) + 4\sin^2 x$

(1) 8

(2) 6

(3) 9

(4) 7

What will be the value of / मान ज्ञात करे $\sin^2 x - \cos^2 x$

$\sqrt{5}\tan x = 5\sin x$

(1) 3/5

(2) 2/5

(3) 4/5

(4) 1

What will be the value of / मान ज्ञात करे $\cos^2 x + \cos^4 x$

$\text{Sin}x + \sin^2 x = 1$

(1) 0

(2) sinx

(3) 1

(4) cosx

What will be the value of / मान ज्ञात करे
(secX +tanX)(1-sinX)=

(1) sinX

(2) cosX

(3) tanX

(4) cosecX

What will be the value of / मान ज्ञात करे cos2X +cosX
if sinX + sin2X =1

(1) 1

(2) 0

(3) 2

(4) -1

What will be the value of / मान ज्ञात करे cosX
if cosecX –cotX =5

(1) 13/15

(2) 12/11

(3) 11/15

(4) 12/13

What will be the value of / मान ज्ञात करे sinX
if secX +tanX =4

(1) 13/15

(2) 15/17

(3) 17/15

(4) 17/13

What will be the value of / मान ज्ञात करे sinx +cosx
Secx + tanx = 2 +$\sqrt{5}$

(1) $\frac{3}{2}$

(2) $\frac{3}{\sqrt{5}}$

(3) 7/9

(4) not

What will be the value of / मान ज्ञात करे $\cos^4 X - \sin^4 X + 1$
if $\cos^2 X - \sin^2 X = 1/3$

(1) 1
(2) 1/3
(3) 4/3
(4) 5/13