


$$\sin 75^\circ = \sin 30^\circ = \frac{1}{2}$$

$$75^\circ = \cancel{360^\circ \times 2} + 30^\circ$$

$$360^\circ = 0^\circ$$


$$\cos 102^\circ = \cos(-6^\circ) = \cos 6^\circ = \frac{1}{2}$$

$$\begin{aligned} 102^\circ &= \cancel{360^\circ \times 3} - 6^\circ \\ &= -6^\circ \end{aligned}$$




$$\tan 1935^\circ = \tan 135^\circ = \tan(90^\circ + 45^\circ) = -\cot 45^\circ = -1$$

$$1935^\circ = \cancel{36^\circ \times 5} + 135^\circ$$



$$\sin 120^\circ = \frac{\sqrt{3}}{2}$$

$$\cos 120^\circ = -\frac{1}{2}$$

$$\sin 180^\circ = 0$$

$$\cos 180^\circ = -1$$

$$\tan 135^\circ = \cot 135^\circ = -1$$

$$\tan 225^\circ = \cot 225^\circ = 1$$

$$\begin{aligned}\cos(180^\circ + 0^\circ) &= -\cos 0^\circ \\ &= -1\end{aligned}$$



complementary angles (पूरक कोण) $\Rightarrow$

If, $A + B = 90^\circ \Rightarrow A, B$ are complementary to each other

$$\sin A = \cos B \Rightarrow \sin A \cdot \sec B = 1$$

$$\tan A = \cot B \Rightarrow \tan A \cdot \tan B = 1 \quad (\text{or}) \quad \cot A \cdot \cot B = 1$$

$$\sec A = \operatorname{cosec} B \Rightarrow \cos A \cdot \operatorname{cosec} B = 1$$

$$\text{Ex:- } \sin 49^\circ \times \sec 41^\circ = 1 \checkmark$$

$$\text{Ex:- } \tan 31^\circ \times \tan 59^\circ = 1 \checkmark$$

$$\text{Ex:- } \cos 74^\circ \times \operatorname{cosec} 16^\circ = 1 \checkmark$$

$$\sec A = \operatorname{cosec} B$$

$$\frac{1}{\cos A} = \frac{1}{\sin B}$$

$$\sin^2 A + \sin^2 B = 1$$

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

$$\cos 16^\circ \times \cos 64^\circ = 1$$

$$\sin^2 53^\circ + \sin^2 37^\circ = 1$$

$$70^\circ \text{ \& } 20^\circ$$

$$48^\circ \text{ \& } 42^\circ$$

$$\boxed{0 \text{ \& } (90^\circ - 0)}$$

$$66^\circ \longleftrightarrow 24^\circ$$

$$54^\circ \longleftrightarrow 36^\circ$$

पूरक कोण

$$A + B = 90^\circ$$
$$\Rightarrow A = 90^\circ - B$$

$$\sin A = \sin(90^\circ - B) = \cos B$$

$$\tan A = \tan(90^\circ - B) = \cot B$$

$$\sec A = \sec(90^\circ - B) = \csc B$$



$$\sin 59^\circ = \cos 31^\circ$$

$$\cos 28^\circ = \sin 62^\circ$$

$$\tan 46^\circ = \cot 44^\circ$$

$$\operatorname{cosec} 37^\circ = \sec 53^\circ$$

$$\cot 44^\circ - \tan 46^\circ = 0$$

$$\sec(71^\circ + 0) - \operatorname{cosec}(19^\circ - 0) = 0$$

$\rightarrow \operatorname{cosec}(19^\circ - 0)$

$$\frac{\sin 32^\circ}{\cos 58^\circ} = \frac{\cancel{\cos 58^\circ}}{\cancel{\cos 58^\circ}} = 1$$




$$180^\circ = \pi \text{ रेडियन}$$

$$1^\circ = \frac{\pi}{180} \text{ रेडियन}$$

$$60^\circ = \frac{\pi}{3} \text{ रेडियन}$$



157. If $\tan\theta = \frac{5}{12}$ and θ is in Quadrant III, what is the value of $\sin\theta$?

यदि $\tan\theta = \frac{5}{12}$ और θ तीसरे चतुर्थांश में है, तो $\sin\theta$ का मान क्या है?

~~[A] $\frac{5}{13}$~~

13 → H

~~[B] $-\frac{5}{13}$~~

$-\frac{5}{13}$

[C] $\frac{12}{13}$

[D] $-\frac{12}{13}$



159. What is the value of $\tan 570^\circ$?

$\tan 570^\circ$ का मान ज्ञात कीजिये?

SSC CHSL PRE 2024

[A] ~~$-1/\sqrt{3}$~~

[C] $1/\sqrt{3}$

[B] $-\sqrt{3}$

[D] $\sqrt{3}$

$$570^\circ = \cancel{360^\circ} + 210^\circ$$

$$\begin{aligned}\tan 210^\circ &= \tan(180^\circ + 30^\circ) \\ &= +\tan 30^\circ \\ &= \frac{1}{\sqrt{3}}\end{aligned}$$

160. Evaluate $\sin(13\pi/6)$.

$\sin(13\pi/6)$ का मूल्यांकन करें.

[A] $1/2$ ✓

[B] $-1/3$

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

[D] $-\sqrt{3}$

$$\sin\left(\frac{13\pi}{6}\right) = \sin 30^\circ$$

$$\frac{13\pi}{6} = \cancel{2\pi} + \frac{\pi}{6}$$

161. If A is an acute angle, the simplified form of $\frac{\cos(\pi-A) \cdot \cot\left(\frac{\pi}{2}+A\right) \cos(-A)}{\tan(\pi+A) \tan\left(\frac{3\pi}{2}+A\right) \sin(2\pi-A)}$ is?

यदि A एक न्यून कोण है, तो निम्न का सरलीकृत रूप क्या होगा?

[A] $\cos^2 A$

[B] $\sin A$

[C] $\sin^2 A$

[D] $\cos A$

$$\pi = 180^\circ$$

$$\frac{\pi}{2} = 90^\circ$$

$$\cot(90^\circ + A)$$

$$\tan(270^\circ + A)$$

$$\frac{-\cos A \times -\tan A \times \cos A}{\tan A \times -\cot A \times -\sin A}$$

$$= \cos A$$

$$\sin(-A)$$

162. $\frac{4}{3} \cot^2 \frac{\pi}{6} + 3 \cos^2 150^\circ - 4 \operatorname{cosec}^2 45^\circ + 8 \sin \frac{\pi}{2} ?$

[A] $\frac{25}{4}$

[B] $\frac{13}{2}$

[C] -1

[D] $-\frac{7}{2}$

6730

$$= \frac{4}{3} \times 3 + 3 \times \frac{3}{4} - 4 \times 2 + 8 \times 1$$

$$= 4 + \frac{9}{4}$$

$$= \frac{25}{4}$$

$$\begin{aligned} \cos 150^\circ &= \cos(180^\circ - 30^\circ) \\ &= -\cos 30^\circ \\ &= -\frac{\sqrt{3}}{2} \end{aligned}$$

163. $\tan 4384^\circ + \cot 6814^\circ = ?$

[A] -1

[C] 2

[B] 0 ✓

[D] 1

$$\begin{aligned} & \tan 64^\circ + \cot (-26^\circ) \\ &= \cancel{\tan 64^\circ} - \cancel{\cot 26^\circ} \end{aligned}$$

$$\cancel{4384^\circ} = 64^\circ$$

$$\cancel{360^\circ} + \cancel{72^\circ} + 64^\circ$$

$$\cancel{6814^\circ} = \cancel{7200^\circ} - 386^\circ$$

$$= -26^\circ$$

$$- (\cancel{36^\circ} + 26^\circ)$$

164. $\operatorname{cosec} 2910^\circ + \sec 4260^\circ + \tan 2565^\circ + \cot 1755^\circ = ?$

[A] 3

[B] 1

[C] 4

[D] 0

$$= \cancel{\operatorname{cosec} 30^\circ} + \cancel{\sec 60^\circ} + \cancel{1} - \cancel{1}$$

$$= 2 + 2$$

$$2910^\circ = 30^\circ$$

$$4260^\circ = \cancel{60^\circ} = -60^\circ$$

$$2565^\circ = \cancel{360^\circ \times 7} + 45^\circ$$

$$1755^\circ = \cancel{180^\circ} - 45^\circ$$

165. Find the value of the following expression $\sin(30 + \theta) - \cos(60 - \theta)$?

निम्नलिखित व्यंजक $\sin(\overset{A}{30^\circ + \theta}) - \cos(\overset{B}{60^\circ - \theta})$ का मान ज्ञात कीजिए?

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[A] $2\sin(30 + \theta)$

[B] 1

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

[D] 0 ✓

166. If θ be acute angle and $\cos \theta = \frac{24}{25}$, then find $\cot(90 - \theta)$?

यदि θ न्यून कोण है और $\cos \theta = \frac{24}{25}$ तो $\cot(90^\circ - \theta)$ ज्ञात कीजिए?

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[A] 5/24

[C] 7/25

[B] 7/24

[D] 6/25

$7 \rightarrow P \quad = \tan \theta = \frac{7}{24}$



167. Express in $\sin 54^\circ + \cos 72^\circ$ in terms of Trigonometric ratios of angles between 0° & 45° ?

$\sin 54^\circ + \cos 72^\circ$ को 0° और 45° के बीच के कोणों के त्रिकोणमितीय अनुपात के रूप में व्यक्त करें?

$= \cos 36^\circ + \sin 18^\circ$

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[A] $\cos 36^\circ + \cos 18^\circ$ [B] $\sin 36^\circ + \sin 18^\circ$

[C] $\sin 36^\circ + \cos 18^\circ$ [D] $\cos 36^\circ + \sin 18^\circ$

168. If $\cos 27^\circ = x$, then the value of $\tan 63^\circ$ is:

यदि $\cos 27^\circ = x$ है, तो $\tan 63^\circ$ का मान है:

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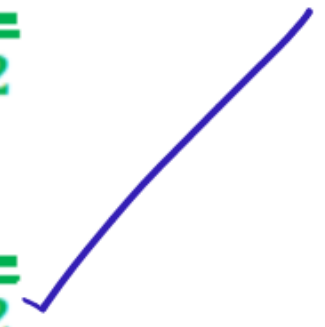
$\cos 27^\circ = \frac{x}{\sqrt{1-x^2}}$

[A] $\frac{\sqrt{1+x^2}}{x}$

[B] $\frac{x}{\sqrt{1+x^2}}$

[C] $\frac{\sqrt{1+x^2}}{x}$

[D] $\frac{x}{\sqrt{1-x^2}}$



169. If $\sin 31^\circ = \alpha$, then the value of $\cot 59^\circ$ is:

यदि $\sin 31^\circ = \alpha$ है, तो $\cot 59^\circ$ का मान ज्ञात कीजिए।

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$$\tan 31^\circ = \frac{\alpha}{\sqrt{1-\alpha^2}}$$

[A] $\frac{\sqrt{1-\alpha^2}}{2\alpha}$

[B] $\frac{\alpha}{\sqrt{1-\alpha^2}}$ ✓

[C] $\frac{\sqrt{1+\alpha^2}}{\alpha}$

[D] $\frac{\alpha}{\sqrt{1+\alpha^2}}$

170. What is the value of $\frac{4}{3}(\sin^2 35^\circ + \sin^2 55^\circ)$?

$\frac{4}{3}(\sin^2 35^\circ + \sin^2 55^\circ)$ का मान क्या है?

SSC CHSL TIER – I 2022

[A] 8/9

[C] 3/4

~~[B] 4/3~~

[D] 2/3

171. The value of $\cos^2 29^\circ + \cos^2 61^\circ$ is?

$\cos^2 29^\circ + \cos^2 61^\circ$ का मान है?

SSC CGL Pre 2024

[A] $\frac{\sqrt{3}}{2}$

[C] 1

[B] 2

[D] 0

172. Find the value of $\frac{\cos 35^\circ}{\sin 55^\circ} + \frac{\sin 11^\circ}{\cos 79^\circ} - 2\cos 27^\circ \operatorname{cosec} 63^\circ$.

~~$\frac{\cos 35^\circ}{\sin 55^\circ} + \frac{\sin 11^\circ}{\cos 79^\circ} - 2\cos 27^\circ \operatorname{cosec} 63^\circ$~~ का मान ज्ञात कीजिए।

[A] 0

[B] 1

[C] -1

[D] 2

1+1-2

173. What is the value of $\frac{5}{2} \left\{ \frac{\cos 37^\circ}{\sin 53^\circ} \right\} - \frac{1}{2} (\sin^2 39^\circ + \sin^2 51^\circ)$?

$\frac{5}{2} \left\{ \frac{\cos 37^\circ}{\sin 53^\circ} \right\} - \frac{1}{2} (\sin^2 39^\circ + \sin^2 51^\circ)$ का मान क्या है?

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[A] $\sin^2 51^\circ - \sin 53^\circ$

[B] $\sin 53^\circ + \tan 51^\circ$

[C] **2**

[D] 1

$$\frac{5}{2} - \frac{1}{2}$$



Test F



174. The value of $\left[\frac{\sin^2 27^\circ + \sin^2 63^\circ}{\cos^2 24^\circ + \cos^2 66^\circ} - \sin^2 69^\circ \cos 69^\circ \sin 21^\circ \right]$ is:

$\left[\frac{\sin^2 27^\circ + \sin^2 63^\circ}{\cos^2 24^\circ + \cos^2 66^\circ} - \sin^2 69^\circ \cos 69^\circ \sin 21^\circ \right]$ का मान ज्ञात करें।

SSC CGL 2024 PRE

[A] 3

[B] 2

[C] 0

[D] 1

$$1 - (s^2 + c^2) = 0$$

175. What is the value of $\sqrt{\frac{9\sin^2 26^\circ + 9\sin^2 64^\circ + 36}{32 - 7\cos^2 32^\circ - 7\cos^2 58^\circ}}?$

$\sqrt{\frac{9\sin^2 26^\circ + 9\sin^2 64^\circ + 36}{32 - 7\cos^2 32^\circ - 7\cos^2 58^\circ}}$ का मान क्या है

SSC CGL Pre 2024

☒ [A] $\frac{3\sqrt{5}}{5}$

[C] $\frac{5\sqrt{5}}{3}$

[B] $\frac{5\sqrt{3}}{3}$

[D] $\frac{3\sqrt{3}}{5}$

$$= \sqrt{\frac{9+36}{32-7}} = \sqrt{\frac{45}{25}}$$

176. Simplify $\left[1 - \sin^2 32^\circ + \frac{1}{1 + \tan^2 58^\circ}\right]$?
 $\left[1 - \sin^2 32^\circ + \frac{1}{1 + \tan^2 58^\circ}\right]$ को सरल बनाएं?

SSC CGL Pre 2024

[A] $1/2$

[B] $\sin 32^\circ$

✓ [C] 1

[D] $\sqrt{3}$

$$\cos^2 32^\circ + \cos^2 58^\circ$$

$$= 1$$

177. The value of $\frac{\sin^2 48^\circ + \sin^2 42^\circ}{\tan^2 40^\circ - \operatorname{cosec}^2 50^\circ}$ is:

$\frac{\sin^2 48^\circ + \sin^2 42^\circ}{\tan^2 40^\circ - \operatorname{cosec}^2 50^\circ}$ का मान ज्ञात कीजिए।

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[A] 1
[C] 0

$\frac{1}{-1}$

[B] 2
[D] -1

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

178. $\cos 19^\circ = \frac{a}{b}$ then $\operatorname{cosec} 19^\circ - \cos 71^\circ = ?$

$\begin{matrix} a \rightarrow B \\ b \rightarrow H \end{matrix}$

[A] ~~$\frac{b^2}{a\sqrt{a^2-b^2}}$~~

[C] ~~$\frac{a^2b^2}{\sqrt{a^2-b^2}}$~~

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

[B] $\frac{a^2}{b\sqrt{b^2-a^2}}$

[D] ~~$\frac{ab}{\sqrt{b^2-a^2}}$~~

$$\operatorname{cosec} 19^\circ - \sin 19^\circ$$

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

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

179. Evaluate $2 \frac{\tan 54^\circ}{\cot 36^\circ} - \frac{\cot 41^\circ}{\tan 49^\circ}$?

~~$2 \frac{\tan 54^\circ}{\cot 36^\circ} - \frac{\cot 41^\circ}{\tan 49^\circ}$~~ का मूल्यांकन करें?

SSC CGL Pre 2024

[A] -1

[B] 1

[C] 0

[D] 2

२-1

180. Find the value of $\frac{\sin 80^\circ}{\cos 10^\circ} - \sin 57^\circ \sec 33^\circ + 2$.

~~$\frac{\sin 80^\circ}{\cos 10^\circ} - \sin 57^\circ \sec 33^\circ + 2$~~ का मान ज्ञात कीजिए।

(RRB GROUP-D 2025)

[A] **2**

[C] 3

[B] 1

[D] 0

181. Evaluate $7 \left(\frac{\operatorname{cosec} 24^\circ}{\sec 66^\circ} \right)^3 + 8 \left(\frac{\cot 37^\circ}{\tan 53^\circ} \right)^4 - \left(2 \frac{\operatorname{cosec} 24^\circ}{\sec 66^\circ} \right)^2 + \left(-3 \frac{\tan 82^\circ}{\cot 8^\circ} \right)^3$.

$7 \left(\frac{\operatorname{cosec} 24^\circ}{\sec 66^\circ} \right)^3 + 8 \left(\frac{\cot 37^\circ}{\tan 53^\circ} \right)^4 - \left(2 \frac{\operatorname{cosec} 24^\circ}{\sec 66^\circ} \right)^2 + \left(-3 \frac{\tan 82^\circ}{\cot 8^\circ} \right)^3$ का मान ज्ञात करें।

SSC Selection Post (Phase-XII)

[A] **-16**

[B] 40

[C] 2

[D] 10

$$7 + 8 - 4 - 27$$

$$15 - 31$$

182. Find the value of $\tan 10^\circ \tan 18^\circ \tan 72^\circ \tan 80^\circ$
 $\tan 10^\circ \tan 18^\circ \tan 72^\circ \tan 80^\circ$ का मान ज्ञात कीजिए।
(RRB GROUP-D 2025)

[A] -1

[C] $\tan 18^\circ$

[B] 1

[D] $\tan 80^\circ$

If, $A+B=90^\circ$

$\tan A \cdot \tan B = 1$

$\cot A \cdot \cot B = 1$

183. **Solve the following:** / निम्नलिखित को हल करें।

$$\frac{2\sin 22^\circ}{\cos 68^\circ} - \frac{2\cot 75^\circ}{5\tan 15^\circ} - \frac{8\tan 45^\circ \tan 20^\circ \tan 40^\circ \tan 50^\circ \tan 70^\circ}{5}$$

RRB NTPC GRADUATE LEVEL 2025

[A] 2

[B] 1

[C] 3

[D] 0

$$2 - \frac{2}{5} - \frac{8}{5}$$

$$2 - 2 = 0$$



184. What is the value of $(\tan 10^\circ \tan 80^\circ + \tan 20^\circ \tan 70^\circ + \tan 30^\circ \tan 60^\circ + \tan 40^\circ \tan 50^\circ)$?
($\tan 10^\circ \tan 80^\circ + \tan 20^\circ \tan 70^\circ + \tan 30^\circ \tan 60^\circ + \tan 40^\circ \tan 50^\circ$) का मान क्या है?

SSC CHSL TIER – I 2022

[A] 4

[B] 3

[C] 5

[D] 2



T.

185. $\tan 7^\circ \cdot \tan 11^\circ \cdot \tan 23^\circ \cdot \tan 30^\circ \cdot \tan 45^\circ \cdot \tan 67^\circ \cdot \tan 79^\circ \cdot \tan 83^\circ = ?$

[A] $\sqrt{3}$

[B] $\frac{1}{\sqrt{3}}$

[C] $2\sqrt{3}$

[D] 2

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

186. The value of $\cot 13^\circ \cot 27^\circ \cot 60^\circ \cot 63^\circ \cot 77^\circ$ is:
 $\cot 13^\circ \cot 27^\circ \cot 60^\circ \cot 63^\circ \cot 77^\circ$ का मान ज्ञात कीजिए।

SSC CHSL 2023 PRE

[A] $\sqrt{3}$

[C] 0

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

[B] 1

☒ [D] $\frac{1}{\sqrt{3}}$

187. The value of the expression $[\cot 1^\circ \cdot \cot 2^\circ \cdot \cot 3^\circ \cdot \cot 4^\circ \cdot \cot 5^\circ \dots \cot 89^\circ]$ is:

व्यंजक $[\cancel{\cot 1^\circ} \cdot \cancel{\cot 2^\circ} \cdot \cot 3^\circ \cdot \cot 4^\circ \cdot \cot 5^\circ \dots \dots \cancel{\cot 89^\circ}]$ का मान क्या है?

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[A] 1235

[C] 1

[B] 0

[D] $\frac{1}{2}$

$$\cot 45^\circ = 1$$

188. What is the value of $\cos 1^\circ \cdot \cos 2^\circ \cdot \cos 3^\circ \dots \dots \cos 177^\circ \cdot \cos 178^\circ \cdot \cos 179^\circ$
 $\cos 1^\circ \cos 2^\circ \cdot \cos 3^\circ \dots \dots \cos 177^\circ \cdot \cos 178^\circ \cdot \cos 179^\circ$ का मान क्या है?

(SSC SELECTION POST XI 2023)

[A] 0 ✓
[C] $\frac{1}{\sqrt{2}}$

[B] 1
[D] $\frac{1}{2}$

189. $2(\sin 1^\circ \times \sec 89^\circ) + 3(\cos 11^\circ \times \operatorname{cosec} 79^\circ) + 5(\tan 21^\circ \times \tan 69^\circ) = ?$

(SSC CPO 2023)

[A] 20

[C] 11

[B] 12

[D] 10

190. What is the value of?/का मान ज्ञात करें।

$$\frac{\sin 33^\circ \cos 57^\circ + \sec 62^\circ \sin 28^\circ + \cos 33^\circ \sin 57^\circ + \operatorname{cosec} 62^\circ \cos 28^\circ}{\tan 15^\circ \tan 35^\circ \tan 60^\circ \tan 55^\circ \tan 75^\circ}$$

SSC CGL 2023 PRE

[A] $\frac{\sqrt{3}}{3}$

[C] $2\sqrt{3}$

[B] 2

☒ [D] $\sqrt{3}$

$\sin(33^\circ + 57^\circ) = \sin 90^\circ = 1$

$\sin 33^\circ + \cos 33^\circ$

$$\frac{3}{\sqrt{3}} = \sqrt{3}$$

$$\sin A \cdot \cos B + \cos A \cdot \sin B = \sin(A+B)$$

