

Maths By Gagan Pratap

# Trigonometry Sheet-1

BASIC SHEET

**Maths Special Batch**
**By Gagan Pratap**

1. $cos\,19° = \frac{a}{b}$ then $cosec\,19° - cos\,71° = ?$

a) $\frac{b^2}{a\sqrt{a^2-b^2}}$ b) $\frac{a^2}{b\sqrt{b^2-a^2}}$ c) $\frac{a^2b^2}{\sqrt{a^2-b^2}}$ d) $\frac{ab}{\sqrt{b^2-a^2}}$

2. In ΔABC, ∠C=90° and AB=c, BC=a, CA=b, then find the value of (cosecB-cosA)?

a) $\frac{c^2}{ab}$ b) $\frac{b^2}{ca}$ c) $\frac{a^2}{bc}$ d) $\frac{bc}{a^2}$

3. If $cos\theta = \frac{2p}{p^2+1}, (p \neq \pm 1)$ then cosecθ is equal to:

यदि $cos\theta = \frac{2p}{p^2+1}, (p \neq \pm 1)$ है तो cosec $\theta$ बराबर है:

$a)\ \frac{2p}{p^2-1}$ b) $\frac{2p}{p^2+1}$ c) $\frac{p^2+1}{2p}$ d) $\frac{p^2+1}{p^2-1}$

4. If $\sin\theta = \frac{a}{\sqrt{a^2+b^2}}$, $0^0 < \theta < 90^0$, then the value of secθ + tanθ is:

यदि $\sin\theta = \frac{a}{\sqrt{a^2+b^2}}$, $0^0 < \theta < 90^0$, तो secθ + tanθ का मान है–

a) $\frac{\sqrt{a^2+b^2}+a}{b}$ b) $\frac{\sqrt{a^2+b^2}+b}{2a}$ c) $\frac{\sqrt{a^2+b^2}+a}{2b}$ d) $\frac{\sqrt{a^2+b^2}+b}{a}$

5. If (cosθ + sinθ): (cosθ - sinθ) = $(\sqrt{3}+1) : (\sqrt{3}-1)$, $0 < \theta < 90^0$, then what is the value of secθ?

यदि (cosθ + sinθ): (cosθ - sinθ) = $(\sqrt{3}+1) : (\sqrt{3}-1)$, $0 < \theta < 90^0$ है, तो secθ का मान क्या होगा?

(a) $\frac{2\sqrt{3}}{3}$ (b) 1 (c) $\sqrt{2}$ (d) 2

6. If $\sin\theta = \sqrt{\frac{1}{6}\sqrt{\frac{1}{6}\sqrt{\frac{1}{6}}}}$ ∞ Then, tanθ+cotθ=?

a) $\frac{36}{\sqrt{35}}$ b) $\frac{36}{35}$ c) $\frac{\sqrt{35}}{36}$ d) $\sqrt{\frac{35}{36}}$

7. $\sin\theta = \frac{8}{17}$, $\tan\alpha = \frac{15}{8}$, then find cos(θ+α) = ?

a)0 b)1 c) $\frac{23}{17}$ d) $\frac{15}{17}$

8. If $5\sin\theta - 4\cos\theta = 0$, $0° < \theta < 90°$, then the value of $\frac{5\sin\theta-2\cos\theta}{5\sin\theta+3\cos\theta}$ is:

यदि $5\sin\theta - 4\cos\theta = 0$, $0° < \theta < 90°$ है, तो $\frac{5\sin\theta-2\cos\theta}{5\sin\theta+3\cos\theta}$ का मान है:

a) $\frac{3}{7}$ b) $\frac{2}{7}$ c) $\frac{5}{8}$ d) $\frac{3}{8}$

9. If $tan\theta = \frac{5}{9}$, then $\frac{18\sin\theta-7\cos\theta}{9\sin\theta+11\cos\theta}$ is eqaul to:

यदि $tan\theta = \frac{5}{9}$, हो तो $\frac{18\sin\theta-7\cos\theta}{9\sin\theta+11\cos\theta}$ का मान होगा?

a) $\frac{5}{14}$ b) $\frac{3}{16}$ c) $\frac{2}{5}$ d) $\frac{4}{11}$

10. If $5\cot\theta = 3$, find the value of $\frac{6\sin\theta - 3\cos\theta}{7\sin\theta + 3\cos\theta}$

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यदि $5\cot\theta = 3$ है, तो $\frac{6\sin\theta-3\cos\theta}{7\sin\theta+3\cos\theta}$ का मान ज्ञात कीजिए।

(A) $\frac{20}{41}$ (B) $\frac{44}{21}$ (C) $\frac{11}{40}$ (D) $\frac{21}{44}$

11. If $12\sin\theta = 5\cos\theta$, then $\sin\theta + \cos\theta - \cot\theta$ is equal to:

यदि $12\sin\theta = 5\cos\theta$ है तो $\sin\theta + \cos\theta - \cot\theta$ का मान है–

a) $\frac{139}{156}$ b) $-\frac{71}{65}$ c) $\frac{116}{156}$ d) $-\frac{16}{65}$

12. If $\cot\theta = \sqrt{6}$, then the value of $\frac{\text{cosec}^2\theta+\sec^2\theta}{\text{cosec}^2\theta-\sec^2\theta}$ is:

यदि $\cot\theta = \sqrt{6}$ है तो $\frac{\text{cosec}^2\theta+\sec^2\theta}{\text{cosec}^2\theta-\sec^2\theta}$ का मान :

a) $\frac{49}{36}$ b) $\frac{43}{36}$ c) $\frac{7}{5}$ d) $\frac{48}{35}$

13. If cosec θ = 1.25, then $\frac{4\tan\theta-5\cos\theta+1}{\sec\theta+4\cot\theta-1}$ = ?

यदि cosec θ = 1.25 है, तो $\frac{4\tan\theta-5\cos\theta+1}{\sec\theta+4\cot\theta-1}$ = ?

(a) 2 (b) $\frac{10}{11}$ (c) $\frac{9}{10}$ (d) $\frac{1}{2}$

14. If $\frac{\sec\theta-\tan\theta}{\sec\theta+\tan\theta} = \frac{3}{5}$, then the value of $\frac{\text{cosec}\theta+\cot\theta}{\text{cosec}\theta-\cot\theta}$ is: –

यदि $\frac{\sec\theta-\tan\theta}{\sec\theta+\tan\theta} = \frac{3}{5}$ है, तो $\frac{\text{cosec}\theta+\cot\theta}{\text{cosec}\theta-\cot\theta}$ का मान बताइए।

a) $31+8\sqrt{15}$ b) $33+4\sqrt{15}$

c) $27+\sqrt{15}$ d) $24+\sqrt{15}$

15. If x=asinθ-bcosθ, y=acosθ+bsinθ, then which of the following is true?

a) $\frac{x^2}{y^2}+\frac{a^2}{b^2} = 1$ b) $x^2+y^2=a^2-b^2$ c) $x^2+y^2=a^2+b^2$ d) $\frac{x^2}{a^2}+\frac{y^2}{b^2} = 1$

16. If xcos A – y sinA = 1 and xsinA+ ycosA = 4, then the value of $17x^2 + 17y^2$ is:

यदि xcos A – y sinA = 1 and xsinA+ ycosA = 4 है तो $17x^2 + 17y^2$ का मान क्या है?

a) 7 b) 49 c) 0 d) 289

17. $x = a + a\sin\alpha.\cos\beta, y = b(1 + \sin\alpha.\sin\beta), \quad z = c.\cos\alpha$, then $\left(\frac{x-a}{a}\right)^2 + \left(\frac{y-b}{b}\right)^2 + \left(\frac{z}{c}\right)^2 = ?$

a)3 b)1 c)-1 d)0

18. $(1 - \sin A.\cos A)(\sin A + \cos A) = ?$

a) $\sin^2 A - \cos^2 A$ b) $\sin^3 A + \cos^3 A$ c) $\cos^2 A - \sin^2 A$ d) 0

19. If $\sin\theta, \cos\theta$ and $\tan\theta$ are in G.P., then find $\cot^6\theta - \cot^2\theta = ?$

a)-1 b)1 c)0 d)2

20. $152(\sin 30° + 2\cos^2 45° + 3\sin 30° + 4\cos^2 45° + \ldots + 17\sin 30° + 18\cos^2 45°)$

a) an integer but not perfect square

b) a rational number but not an integer

c) a perfect square of an integer

d) irrational

21. In a triangle ABC, right angled at B, AB= 7 and (AC-BC)= 1cm. The value of (secA+cotC) is:

ΔABC में B पर समकोण है, AB=7cm और (AC-BC)=1cm है। (secA+cotC) का मान है:

a) $\frac{4}{3}$ b) $\frac{3}{4}$ c) $\frac{175}{24}$ d) 7

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22. In a right ΔABC, ∠B=90°, AC-BC=2, AB=4√2, Then secA+cotC?
a) 2√2 b) 4√2 c) 3√2 d) 5/√2

23. If $\frac{cos^2\theta}{cot^2\theta-cos^2\theta} = 3$, $0^0 < \theta < 90^0$, then the value of cotθ + cosecθ is:
यदि $\frac{cos^2\theta}{cot^2\theta-cos^2\theta} = 3$, $0^0 < \theta < 90^0$ है, तो cotθ + cosecθ का मान है:
a) $\sqrt{3}$ b) $\frac{\sqrt{3}}{2}$ c) $2\sqrt{3}$ d) $3\frac{\sqrt{3}}{4}$

24. If secx + cosx = 3, then $\tan^2x - \sin^2x$ =?
a) 5 b) 13 c) 9 d) 4

25. If cosα+secα=√3, then value of $\cos^3\alpha+\sec^3\alpha$?
a)2 b)4 c)0 d)1

26. What is the simplified value of $\frac{cotA+tanB}{cotB+tanA}$ =?
a) tanBcotA b) tanAcotB
c) tanAtanB d) cotAcotB

27. If $0^0 \le \theta \le 90^0$, and $\sec^{107}\theta + \cos^{107}\theta = 2$, then, (secθ + cosθ) is equal to:
यदि $0^0 \le \theta \le 90^0$ और $\sec^{107}\theta + \cos^{107}\theta = 2$ है, तो (secθ + cosθ) का मान ज्ञात कीजिए।
(a) $2^{-107}$ (b) 2 (c) ½ (d) 1

28. $9\sin^2\theta+5\cos^2\theta=8$ $(0 \le \theta \le 90°)$, then θ=?
a)$\frac{\pi}{2}$ b) $\frac{\pi}{3}$ c) $\frac{\pi}{4}$ d) $\frac{\pi}{6}$

29. If θ lies in the first quadrant and $\cos^2\theta - \sin^2\theta = \frac{1}{2}$, then the value of $\tan^2 2\theta + \sin^2 3\theta$ is:
यदि θ प्रथम चतुर्थांश में है और $\cos^2\theta - \sin^2\theta = \frac{1}{2}$, तो $\tan^2 2\theta + \sin^2 3\theta$ का मान है:
a) $\frac{4}{3}$ b) 4 c) 3 d) $\frac{7}{2}$

30. For 0°<θ<90°, if $2cos^2\theta = 3sin\theta$, then the value of $(cosec^2\theta - cot^2\theta + cos^2\theta)$ is equal to:
$0° < \theta < 90°$ के लिए, अगर $2cos^2\theta = 3sin\theta$ है तो$(cosec^2\theta - cot^2\theta + cos^2\theta)$ का मान है:
$a)1\frac{1}{2}$ b)$1\frac{3}{4}$ c)$1\frac{1}{4}$ d)$2\frac{1}{4}$

31. If $2\sin\theta + 15\cos^2\theta = 7$, $0° < \theta < 90°$, then what is the value of $\frac{3-tan\theta}{2+tan\theta}$?
यदि $2\sin\theta + 15\cos^2\theta = 7$, $0° < \theta < 90°$ है, तो $\frac{3-tan\theta}{2+tan\theta}$ का मान क्या है?
(a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) $\frac{5}{8}$ (d) $\frac{3}{4}$

32. If $5\,sin^2\theta + 14cos\theta = 13, 0° < \theta < 90°$, then what is the value of $\frac{sec\theta+cot\theta}{cosec\theta+tan\theta}$?
यदि $5\sin^2\theta + 14\cos\theta = 13$, $0° < \theta < 90°$ है, तो $\frac{\sec\theta + \cot\theta}{\text{cosec}\theta + \tan\theta}$ का मान क्या होगा?
a) $\frac{9}{8}$ b) $\frac{31}{29}$ c) $\frac{21}{28}$ d) $\frac{32}{27}$

33. If $2\sin\theta + 15\,cos^2\theta = 7, 0° < \theta < 90°, then\ tan\theta + cos\theta + sec\theta$ =?
यदि $2\sin\theta + 15\cos^2\theta = 7$, $0° < \theta < 90°$ है, तो $\tan\theta + \cos\theta + \sec\theta$ का मान ज्ञात कीजिए।
a) $3\frac{4}{5}$ b) 3 c) $3\frac{3}{5}$ d) 4

34. If $7\,sin^2\theta - cos^2\theta + 2sin\theta = 2, 0° < \theta < 90°, then\ the\ value\ of\ \frac{sec2\theta+cot2\theta}{cosec2\theta+tan2\theta}\ is$?

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यदि $7\sin^2\theta - \cos^2\theta + 2\sin\theta = 2, 0° < \theta < 90°$ है, तो $\frac{\sec 2\theta + \cot 2\theta}{\operatorname{cosec} 2\theta + \tan 2\theta}$ का मान क्या है?

a) $\frac{2\sqrt{3}+1}{3}$ b) 1 c) $\frac{1(1+2\sqrt{3})}{5}$ d) $\frac{2}{5}(1+\sqrt{3})$

**35. If $3 - 2\sin^2\theta - 3\cos\theta = 0, 0° \le \theta \le 90°$, then the value of $(2\operatorname{cosec}\theta + \tan\theta)$:**

**यदि $3 - 2\sin^2\theta - 3\cos\theta = 0, 0° \le \theta \le 90°$ है तो $(2\operatorname{cosec}\theta + \tan\theta)$ का मान है:**

a) $7\sqrt{3}$ b) $5\sqrt{3}$ c) $\frac{5\sqrt{3}}{3}$ d) $\frac{7\sqrt{3}}{3}$

**36. If $4 - 6\cos^2\theta - \sin\theta = 0, 0^0 < \theta < 90^0$, then the value of $\cot\theta + \tan\theta$:**

यदि $4 - 6\cos^2\theta - \sin\theta = 0, 0^0 < \theta < 90^0$, है, तो $\cot\theta + \tan\theta$ का मान है:

a) $9\sqrt{2}/5$ b) $9/2\sqrt{5}$ c) $3\sqrt{2}/5$ d) $3/2\sqrt{5}$

**37. If $11\sin^2\theta - \cos^2\theta + 4\sin\theta - 4 = 0, 0° < \theta < 90°$, then what is the value of $\frac{\cot 2\theta + \cos 2\theta}{\sec 2\theta - \tan 2\theta}$?**

**यदि $11\sin^2\theta - \cos^2\theta + 4\sin\theta - 4 = 0, 0° < \theta < 90°$, तो $\frac{\cot 2\theta + \cos 2\theta}{\sec 2\theta - \tan 2\theta}$ का मान क्या है?**

a) $\frac{12+7\sqrt{3}}{6}$ b) $\frac{12+5\sqrt{3}}{3}$ c) $\frac{10+5\sqrt{3}}{3}$ d) $\frac{10+7\sqrt{3}}{6}$

**38. If $\tan^2\theta - 3\sec\theta + 3 = 0, 0^0 < \theta < 90^0$, then the value of $\sin\theta + \cot\theta$ is:**

यदि $\tan^2\theta - 3\sec\theta + 3 = 0, 0^0 < \theta < 90^0$ है, तो $\sin\theta + \cot\theta$ का मान होगा–

a) $\frac{5\sqrt{3}}{6}$ b) $2\sqrt{3}$ c) $\frac{5\sqrt{3}}{3}$ d) $3\sqrt{3}$

**39. If $\tan\theta - \cot\theta = \operatorname{cosec}\theta$ $0°<\theta<90°$, then what is the value of $\frac{2\tan\theta - \cos\theta}{\sqrt{3}\cot\theta + \sec\theta}$?**

**यदि $\tan\theta - \cot\theta = \operatorname{cosec}\theta$ $0°<\theta<90°$, तो $\frac{2\tan\theta - \cos\theta}{\sqrt{3}\cot\theta + \sec\theta}$ का मान क्या है?**

a) $\frac{2(2\sqrt{3}-1)}{3}$ b) $\frac{4\sqrt{3}-1}{6}$ c) $\frac{3\sqrt{3}-1}{6}$ d) $\frac{2\sqrt{3}-1}{6}$

**40. If $12\cot^2\theta - 31\operatorname{cosec}\theta + 32 = 0, 0° < \theta < 90°$, then the values of $\sin\theta$ will be:**

**यदि $12\cot^2\theta - 31\operatorname{cosec}\theta + 32 = 0, 0° < \theta < 90°$ है तो $\sin\theta$ का मान होगा?**

a) $\frac{5}{4}, \frac{4}{3}$ b) $\frac{2}{3}, \frac{1}{4}$ c) $\frac{4}{5}, \frac{3}{4}$ d) $\frac{1}{3}, \frac{3}{2}$

**41. If $3 + \cos^2\theta = 3(\cot^2\theta + \sin^2\theta)$, $0 < \theta < 90^0$, then what is tha value of $(\cos\theta + 2\sin\theta)$?**

यदि $3 + \cos^2\theta = 3(\cot^2\theta + \sin^2\theta)$, $0 < \theta < 90^0$ है, तो $(\cos\theta + 2\sin\theta)$ का मान ज्ञात कीजिए।

(a) $3\sqrt{2}$ (b) $\frac{\sqrt{3}+2}{2}$ (c) $\frac{2\sqrt{3}+1}{2}$ (d) $\frac{3\sqrt{3}+1}{2}$

**42. If $6\tan\theta - 5\sqrt{3}\sec\theta + 12\cot\theta = 0, 0° < \theta < 90°$, then the value of $(\operatorname{cosec}\theta + \sec\theta)$ is**

**यदि $6\tan\theta - 5\sqrt{3}\sec\theta + 12\cot\theta = 0, 0° < \theta < 90°$ है, तो $(\operatorname{cosec}\theta + \sec\theta)$ का मान ज्ञात कीजिए।**

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(A) $\frac{3+2\sqrt{3}}{2}$ (B) $\frac{3+\sqrt{3}}{2}$ (C) $\frac{2(3+2\sqrt{3})}{3}$ (D) $\frac{2}{3}(3+\sqrt{3})$

**43.If cotθ + tanθ = 2secθ, 0<θ <90, then the value of $\frac{tan2\theta-sec\theta}{cot2\theta+cosec\theta}$ is:**

a) $\frac{3-\sqrt{2}}{11}$ b) $\frac{2\sqrt{3}-1}{5}$ c) $\frac{2\sqrt{3}-1}{11}$ d) $\frac{3-\sqrt{2}}{5}$

**44. If $\frac{cos\theta}{1-sin\theta}+\frac{cos\theta}{1+sin\theta}$ = 4, $0^0 < \theta < 90^0$, then the value of (tanθ + cosecθ) is:**

यदि $\frac{cos\theta}{1-sin\theta}+\frac{cos\theta}{1+sin\theta}$ = 4, $0^0 < \theta < 90^0$ है, तो (tanθ + cosecθ) का मान होगा–

(a) $5\frac{\sqrt{2}}{2}$ (b) $5\frac{\sqrt{3}}{3}$ (c) $4\frac{\sqrt{3}}{3}$ (d) $5\frac{\sqrt{2}}{3}$

**45. If $\frac{sin\theta}{1+cos\theta}+\frac{1+cos\theta}{sin\theta}=\frac{4}{\sqrt{3}}$, $0^o < \theta < 90^o$, then the value of $(tan\theta + sec\theta)^{-1}$ is :**

यदि $\frac{sin\theta}{1+cos\theta}+\frac{1+cos\theta}{sin\theta}=\frac{4}{\sqrt{3}}$, $0^o < \theta < 90^o$, तो $(tan\theta + sec\theta)^{-1}$ का मान है :

a) $2+\sqrt{3}$ b) $2-\sqrt{3}$ c) $3-\sqrt{2}$ d) $3+\sqrt{2}$

**46. If $(\frac{1}{1+cosec\theta}-\frac{1}{1-cosec\theta})$ $cos\theta = 2$, $0°<\theta < 90°$, then the value of $sin^2\theta + cot^2\theta + sec^2\theta$ is:**

यदि $(\frac{1}{1+cosec\theta}-\frac{1}{1-cosec\theta})$ $cos\theta = 2$, $0°<\theta < 90°$ है , तो $sin^2\theta + cot^2\theta + sec^2\theta$ का मान है:

a)1 $b)2\frac{1}{2}$ C) $3\frac{1}{2}$ d)2

**47. If cosA=tanB, cosB=tanC and cosC=tanA, then sinA=?**

a)$\frac{\sqrt{5}-1}{4}$ b) $\frac{\sqrt{5}-1}{2}$ c) $\frac{\sqrt{3}-1}{2}$ d)$\frac{3-2\sqrt{2}}{2}$

**48. A simplified value of $(\frac{sin\theta}{1+cos\theta}+\frac{1+cos\theta}{sin\theta})(\frac{1}{tan\theta+cot\theta})$is:**

$(\frac{sin\theta}{1+cos\theta}+\frac{1+cos\theta}{sin\theta})(\frac{1}{tan\theta+cot\theta})$ का सरलीकृत मान है:

a)$cos\theta$ b)$2sin\theta$ c)$sin\theta$ d)$2cos\theta$

**49. The value of $\frac{(sin\theta-cos\theta)(1+tan\theta+cot\theta)}{1+sin\theta cos\theta}$ =?**

$\frac{(sin\theta-cos\theta)(1+tan\theta+cot\theta)}{1+sin\theta cos\theta}$ का मान है :

a) secθ – cosecθ b) cosecθ – secθ

c) sinθ + cosθ d) tanθ – cotθ

**50. If $\frac{(sin\theta-cosec\theta)(cos\theta-sec\theta)}{tan^2\theta-sin^2\theta}=r^3$, then r=?**

यदि $\frac{(sin\theta-cosec\theta)(cos\theta-sec\theta)}{tan^2\theta-sin^2\theta}=r^3$ है तो r बराबर है:

a)$sin\theta cos\theta$ b)$tan\theta$ c)$cot\theta$ d)$cosec\theta sec\theta$

**51. If $\sqrt{\frac{1-cos\theta}{1+cos\theta}}\times\sqrt{\frac{cosec\theta-cot\theta}{cosec\theta+cot\theta}}=\frac{1-r}{1+r}$, then the value of r is:**

यदि $\sqrt{\frac{1-cos\theta}{1+cos\theta}}\times\sqrt{\frac{cosec\theta-cot\theta}{cosec\theta+cot\theta}}=\frac{1-r}{1+r}$ है तो r का मान है:

a) $sin\theta$ b) $cosec\theta$ c) $sec\theta$ d) $cos\theta$

**52. If $(1 + tan^2\theta) + (1 +(tan^2\theta)^{-1}) = k$, then $\sqrt{k} = ?$**

यदि $(1 + tan^2\theta) + (1 +(tan^2\theta)^{-1}) = k$ है, तो $\sqrt{k} = ?$

(a) cosecθ secθ (b) cosecθ cosθ

(c) sinθ cosθ (d) sinθ secθ

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53. $\frac{2+\tan^2\theta+\cot^2\theta}{\sec\theta\,\operatorname{cosec}\theta}$ is equal to:

a)cotθ b)cosθ sinθ c)secθ cosecθ d)tanθ

54. The value of $\tan^2\emptyset+\cot^2\emptyset-\sec^2\emptyset\operatorname{cosec}^2\emptyset$ is equal to:

$\tan^2\emptyset+\cot^2\emptyset-\sec^2\emptyset\operatorname{cosec}^2\emptyset$ का मान बराबर है :

a) – 1 b) – 2 c) 1 d) 0

55. The value of $\frac{\sec^2\theta}{\operatorname{cosec}^2\theta}+\frac{\operatorname{cosec}^2\theta}{\sec^2\theta}-(\sec^2\theta+\operatorname{cosec}^2\theta)$ is:

$\frac{\sec^2\theta}{\operatorname{cosec}^2\theta}+\frac{\operatorname{cosec}^2\theta}{\sec^2\theta}-(\sec^2\theta+\operatorname{cosec}^2\theta)$ का मान बराबर है:

a) 1 b) – 2 c) 0 d) 2

56. If $\cos^2\theta-\sin^2\theta=\tan^2\varphi$, then which of the following is true?

यदि $\cos^2\theta-\sin^2\theta=\tan^2\emptyset$ है, तो निम्नलिखित में से कौन सा विकल्प सही है?

(a) $\cos\theta\cos\varphi=1$ (b) $\cos^2\varphi-\sin^2\varphi=\tan^2\theta$

(c) $\cos^2\varphi-\sin^2\varphi=\cot^2\theta$ (d) $\cos\theta\cos\varphi=\sqrt{2}$

57. $\frac{4}{3}\cot^2\frac{2\pi}{6}+3\cos^2150°-4\operatorname{cosec}^245°+8\sin\frac{\pi}{2}$?

a)$\frac{25}{4}$ b) $\frac{13}{2}$ c) -1 d) $-\frac{7}{2}$

58. If A lies in third quadrant, and 20 tan A =21, then the value of $\frac{5\sin A-2\cos A}{4\cos A-\frac{5}{7}\sin A}$ is:

यदि A तीसरे चतुर्थांश स्थित है और 20 tan A =21 है तो $\frac{5\sin A-2\cos A}{4\cos A-\frac{5}{7}\sin A}$ का मान ज्ञात कीजिये?

a) $\frac{5}{29}$ b) $-\frac{65}{29}$ c) 1 d) $\frac{13}{12}$

59. The value of $\frac{4\tan^230°+\frac{1}{4}\sin^290°+\frac{1}{8}\cot^260°+\sin^230°\cos^245°}{\sin60°\cos30°-\cos60°\sin30°}$ is :

$\frac{4\tan^230°+\frac{1}{4}\sin^290°+\frac{1}{8}\cot^260°+\sin^230°\cos^245°}{\sin60°\cos30°-\cos60°\sin30°}$ का मान है:

a)$1\frac{3}{4}$ b)4 c)$2\frac{1}{2}$ d)$3\frac{1}{2}$

60. Sin (630+A) +cos A?

a) $\frac{\sqrt{3}}{2}$ b) $\frac{1}{2}$

c) 0 d) 1

61. $\frac{2\sin22°}{\cos68°}-\frac{2\cot75°}{5\tan15°}-\frac{8\tan45°\ \tan20°\ \tan40°\ \tan50°\ \tan70°}{5}$

निम्नलिखित को हल करें।

$\frac{2\sin22°}{\cos68°}-\frac{2\cot75°}{5\tan15°}-\frac{8\tan45°\tan20°\tan40°\tan50°\tan70°}{5}$

(A) 2 (B) 1 (C) 3 (D) 0

62. If A, B and C be the angles of a triangle, then out of the following, the incorrect relation is:

a)$\cos\frac{A+B}{2}=\sin\frac{C}{2}$ b) $\tan\frac{A+B}{2}=\sec\frac{C}{2}$ c) $\cot\frac{A+B}{2}=\tan\frac{C}{2}$ d) $\sin\frac{A+B}{2}=\cos\frac{C}{2}$

63. The value of $\frac{(\cos9°+\sin81°)(\sec9°+\operatorname{cosec}81°)}{\sin56°\sec34°+\cos25°\operatorname{cosec}65°}$ is:

$\frac{(\cos9°+\sin81°)(\sec9°+\operatorname{cosec}81°)}{\sin56°\sec34°+\cos25°\operatorname{cosec}65°}$ का मान है:

a) ½ b)4 b)2 d)1

64. $\sec^2 29°-\cot^2 61°+\sin^2 60°+\operatorname{cosec}^230°$ is equal to:

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$\sec^2 29° - \cot^2 61° + \sin^2 60° + cosec^2 30°$ का मान है–

(a) $\frac{19}{4}$ (b) $\frac{23}{4}$ (c) $\frac{15}{4}$ (d) $\frac{11}{4}$

65. $A = 30°,\ B = 60°, C = 135°$ then $sin^3A + cos^3B + tan^3C - 3sinAcosBtanC$ =?

a)0 b)-1 c)8 d)9

66. What is cosec(75°+θ)-sec(15°-θ)- tan (55°+ θ)+cot(35°- θ)?

a)-1 b)0 c)1 d)$\frac{3}{2}$

67. $cos\,ec^2 67° + sec^2\,5\,7° - cot^2\,3\,3° - tan^2\,2\,3°$

a)$2\sqrt{2}$ b)2 c)$\sqrt{2}$ d)0

68. $2cosec^2 23°.cot^2 67°$ $-sin^2 23°-sin^2 67°-cot^2 67°$=?

a)1 b)$sec^2 23°$ c)$tan^2 23°$ d)0

69. **The value of $\tan^2 48° - cosec^2 42° + cosec\,(67° + \theta) - sec(23° - \theta)$ is:**

$\tan^2 48° - cosec^2 42° + cosec\,(67° + \theta) - sec(23° - \theta)$ का मान ज्ञात कीजिए।

(a) -1 (b) 0 (c) 1 (d) –2

70. If cosec 31°=x, then $sin^2 59° + \frac{1}{cosec^2 31°} + tan^2 59° - \frac{1}{sin^2 59°\, cosec^2 59°}$ is equal to:

अगर cosec 31°=x, है ,तो $sin^2 59° + \frac{1}{cosec^2 31°} + tan^2 59° - \frac{1}{sin^2 59°\, cosec^2 59°}$ बराबर है:

a)$\sqrt{X + 1}$ b) $\sqrt{x^2 - 1}$ c)$\sqrt{X - 1}$ d) $\sqrt{x^2 + 1}$

71. If cos x =$\frac{-1}{2}$ and $\pi$ <x< $\frac{3\pi}{2}$, then the value of $2tan^2 x + 3cosec^2 x$ is:

यदि cos x =$\frac{-1}{2}$और $\pi$ <x< $\frac{3\pi}{2}$है तो $2tan^2 x + 3cosec^2 x$ का मान है:

a)4 b)10 c)8 d)16

72. $sin^2 \frac{\pi}{16} + sin^2 \frac{7\pi}{16} + sin^2 \frac{9\pi}{16} + sin^2 \frac{15\pi}{16}$

a)$\frac{8}{3}$ b)2 c)$\frac{7}{4}$ d)$\frac{5}{16}$

73. The value of $(tan29°cot61° - cosec^2 61°) + cot^2 54° - sec^2 36° + (sin^2 1° + sin^2 3° + sin^2 5° + \ldots + sin^2 89°)$ is:

$(tan29°cot61° - cosec^2 61°) + cot^2 54° - sec^2 36° + (sin^2 1° + sin^2 3° + sin^2 5° + \ldots + sin^2 89°)$ का मान है :

a) $22\frac{1}{2}$ b) 21 c) $20\frac{1}{2}$ d) 22

74. $cos^2\,1 + cos^2\,2 + cos^2\,3 + \ldots . cos^2\,90° =$?

75. $cos^2 \frac{\pi}{40} + cos^2 \frac{3\pi}{40} + cos^2 \frac{7\pi}{40} + cos^2 \frac{10\pi}{40} + cos^2 \frac{13\pi}{40} + cos^2 \frac{17\pi}{40} + cos^2 \frac{19\pi}{40}$ =?

a)2 b)3 c)$2\frac{1}{2}$ d)$3\frac{1}{2}$

76. Find the value of $\frac{tan1°}{1+tan1°} + \frac{tan2°}{1+tan2°} + \ldots\ldots\ldots\ldots + \frac{tan89°}{1+tan89°}$?

a)44.5 b)45 c)44 d)89

77. $tan\,7° \cdot tan\,11° \cdot tan\,23° \cdot tan\,30°\, tan\,45° \cdot tan\,67° \cdot tan\,79° \cdot tan\,83°$ =?

a) $\sqrt{3}$ b) $\frac{1}{\sqrt{3}}$ c) $2\sqrt{3}$ d)2

78. $cos\,1° \cdot cos\,2° \cdot cos\,3° \ldots cos\,179°$ =?

a)1 b)-1 c)0 d)2

79. What is the value of $\frac{3}{2}\left(\frac{cos39^0}{sin51^0}\right) - \sqrt{sin^2 39^0 + sin^2 51^0}$ =?

a)1/2 b)5/2 c)0 d)Both 1/2 and 5/2

80. The value of $\left[\frac{(\sin^2 24° + \sin^2 66°)}{\cos^2 24° + \cos^2 66°} + \sin^2 61° + cos61°sin29°\right]$ is:

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(a) 3 (b) 1 (c) 2 (d) 0

81. $\frac{\sin 37^\circ}{\cos 53^\circ}+\frac{2\tan 49^\circ}{\cot 41^\circ}$ - 5(cot11.cot31.cot45.cot59.cot79) + 3($\sin^2 76.5+\sin^2\frac{3\pi}{40}$)

a)1 b)0 c)-1 d)2

82. tan(8θ-11°). tan(11θ-13°)=1, then find the value of sin10θ+cos5θ?

a)$\sqrt{3}$ b)$\frac{2}{\sqrt{3}}$ c)$\frac{\sqrt{3}}{2}$ d)$\frac{3\sqrt{3}}{4}$

83. If $\tan(70^\circ-3\theta)=\cot(9\theta-280^\circ)$ then $\tan\frac{6\theta}{5}+\cos(\theta-20^\circ)$ =?

a)$\frac{3\sqrt{3}}{2}$ b) $\frac{2\sqrt{3}}{3}$ c) $\sqrt{3}$ d) $\frac{1}{\sqrt{3}}$

84. If tan(11θ) = cot(7θ), then what is the value of $\sin^2(6\theta)+\sec^2(9\theta)+\operatorname{cosec}^2(12\theta)$?

यदि tan(11θ) = cot(7θ) है, तो $\sin^2(6\theta)+\sec^2(9\theta)+\operatorname{cosec}^2(12\theta)$ का मान ज्ञात कीजिए।

(a) $\frac{35}{12}$ (b) $\frac{23}{6}$ (c) $\frac{31}{12}$ (d) $\frac{43}{12}$

85. The value of $\frac{\tan13^\circ\tan37^\circ\tan45^\circ\tan53^\circ\tan77^\circ}{2\operatorname{cosec}^2 60^\circ(\cos^2 60^\circ-3\cos60^\circ+2)}$ is:

a)2 b)1 c)3/2 d)1/2

86. If $\sin(3x-23^\circ)\cdot\sec(5x-37^\circ)=1$ then x?

a) 16° b)15.25° c) 12.25° d) 18.75°

87. If sin3θ.sec2θ = 1, then what is the value of [$3\tan^2(5\theta/2)$ -1]?

यदि sin3θ.sec2θ = 1, तो [$3\tan^2(5\theta/2)$ -1] का मान क्या होगा?

a) 0 b) 3 c) 1 d) 2

88. If $\cos(90-\theta)=\sin(3\theta-50^\circ)$ then $\theta$ =?

a)30° b)20° c)25° d)45°

89. If $\sec(7\theta+28^\circ)=\operatorname{cosec}(30^\circ-3\theta)$ then$\theta$ =?

a)12.5° b) 8° c)10° d)15°

90. If $\operatorname{cosec}2\theta=\sec(3\theta-15^\circ)$, then θ is equal to:

यदि $\operatorname{cosec}2\theta=\sec(3\theta-15^\circ)$ है, तो θ बराबर है

(a) $22^0$ (b) $20^0$ (c) $25^0$ (d) $21^0$

91. If 2sec2θ = tan φ + cot φ , then one of the values of θ +φ =?

यदि 2sec2θ = tan φ + cot φ , तो θ +φ का एक मान होना चाहिए =?

(a)π/2 (b) π/4 (c) π/3 (d) π/6

92. What is the value of $\frac{\operatorname{cosec}(78^\circ+\theta)-\sec(12^\circ-\theta)-\tan(67^\circ+\theta)+\cot(23^\circ-\theta)}{\tan13^\circ\tan37^\circ\tan45^\circ\tan53^\circ\tan77^\circ}$ ?

$\frac{\operatorname{cosec}(78^\circ+\theta)-\sec(12^\circ-\theta)-\tan(67^\circ+\theta)+\cot(23^\circ-\theta)}{\tan13^\circ\tan37^\circ\tan45^\circ\tan53^\circ\tan77^\circ}$ का मान क्या है ?

a) 1 b) 0 c) 2 d) -1

93. If $6(\sec^2 59^\circ-\cot^2 31^\circ)-\frac{2}{3}\sin^2 90^\circ-3\tan^2 56^\circ y\tan^2 34^\circ=\frac{y}{3}$, then the value of y is:

यदि $6(\sec^2 59^\circ-\cot^2 31^\circ)-\frac{2}{3}\sin^2 90^\circ-3\tan^2 56^\circ y\tan^2 34^\circ=\frac{y}{3}$ है तो y का मान है:

a) $\frac{8}{5}$ b) $-\frac{8}{5}$ c) $\frac{2}{3}$ d) $\frac{-2}{3}$

94. $\frac{5}{\sec^2\theta}+\frac{2}{1+\cot^2\theta}+3\sin^2\theta$ =?

a)2 b)3 c)4 d)5

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95. $\frac{6}{1+tan^2\alpha}+\frac{2}{1+cot^2\alpha}+4\,sin^2\alpha-1=?$

a)2 b)3 c)4 d)5

96. $3(sin\,x-cos\,x)^4+6(sin\,x+cos\,x)^2+4(sin^6\,x+cos^6\,x)=?$

a)11 b)14 c)13 d)12

97. If $A+B+C=90°$, then $sin\frac{A}{2}\cdot sin\left(\frac{180-B-C}{2}\right)+cos\frac{A}{2}\cdot sin\frac{B+C}{2}=?$

a)$\frac{1}{2}$ b)$\frac{1}{\sqrt{2}}$ c)0 d)$\frac{3}{\sqrt{2}}$

98. If $0<\theta<\frac{\pi}{2}$, $0<\varphi<\frac{\pi}{2}$ and cos θ<cos φ, then which of the following is correct?

a) θ<φ b) θ>φ c) θ+φ=90° d) none

99. Which of the following is true for $0^0<\theta<90^0$?

a)$cos\theta\leq cos^2\theta$ b) $cos\theta>cos^2\theta$ c)$cos\theta<cos^2\theta$ d)$cos\theta\geq cos^2\theta$

100. If $0<\theta<\frac{\pi}{4}$, then what is $\sqrt{1-2sin\theta cos\theta}$ equal to?

a)cosθ-sinθ b)sinθ-cosθ c)±(cosθ-sinθ) d)cosθsinθ

101. If $0<x<\frac{\pi}{2}$ then (sinx+cosecx) is

a) >2 b)<2 c)≤2 d)≥2

102. If the sum and difference of two angles are $135^0$ and $\frac{\pi}{12}$ respectively, then the value of the largest angles in radian measure is:

दो कोणों का योग और अंतर क्रमश 135° और $\frac{\pi}{12}$ है, तब बड़े कोण का मान रेडियन में ज्ञात करे ?

a)$\frac{2\pi}{3}$ b)$\frac{3\pi}{5}$ c)$\frac{5\pi}{12}$ d)$\frac{\pi}{2}$

103. If the sum and difference of two angles are 22/9 radian and $36^0$ respectively, then the value of the smallest angles in degree measure is?

दो कोणों का योग और अंतर क्रमश 22/9 रेडियन और 36° है, तब छोटे कोण का मान रेडियन में ज्ञात करे ?

a)$52^0$ b)$60^0$ c)$56^0$ d)$48^0$

104. Find central angle made by an arc of length 11cm and radius 14cm.

उस चाप केन्द्रीय कोण का माप क्या होगा, जिसकी लम्बाई 11सेमी. है और वृत्त की त्रिज्या 14 सेमी है ?

a)$90^0$ b)$45^0$ c)$60^0$ d)$75^0$

105. Consider the following statements:

Sin1°>sin1

Cos1°<cos1

Which of the following statements is /are correct?

a) 1 only b)2 only c)both 1 & 2 d)none

106. $sec^2\,\theta=\frac{4xy}{(x+y)^2}$ is possible when

a) $x=-y$ b) $x<y$

c) $x>y$ d) $x=y$

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