

TRIGONOMETRY (SHEET-03)

त्रिकोणमिति

UPDATED

CLASS ROOM SHEET

FOR ALL EXAMS

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 Rankers Gurukul

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TRIGONOMETRY / त्रिकोणमिति

(CLASSROOM SHEET-03)

TRIGONOMETRIC IDENTITIES

1. Select the INCORRECT formula from the following options.

निम्नलिखित विकल्पों में से गलत सूत्र का चयन कीजिए।

SSC CGL 17/07/2023 (Shift-01)

- (a) $\sec^2\theta - \tan^2\theta = 1$
 (b) $\sin^2\theta + \cos^2\theta = 1$
 (c) $\operatorname{cosec}^2\theta - \cot^2\theta = 1$
 (d) $\sec^2\theta + \cos^2\theta = 1$

2. Which of the following is equal to $\frac{1}{\tan\theta} + \tan\theta$?

निम्न में से कौन $\frac{1}{\tan\theta} + \tan\theta$ के बराबर है?

SSC CGL MAINS (08/08/2022)

- (a) $\frac{\operatorname{cosec}\theta}{\sec\theta}$ (b) $\tan^2\theta$
 (c) $\sec\theta \cdot \operatorname{cosec}\theta$ (d) 1

3. Which of the following is equal to $\left[\frac{\cos\theta}{\sin\theta} + \frac{\sin\theta}{\cos\theta}\right]$?

निम्न में से कौन $\left[\frac{\cos\theta}{\sin\theta} + \frac{\sin\theta}{\cos\theta}\right]$ के बराबर है?

SSC CGL MAINS (08/08/2022)

- (a) $\cot\theta \cdot \sec\theta$ (b) $\operatorname{cosec}\theta \cdot \sec\theta$
 (c) $\sec\theta \cdot \tan\theta$ (d) $\operatorname{cosec}\theta \cdot \tan\theta$

4. Which of the following is equal to $\sec A - \cos A$?

निम्न में से कौन $\sec A - \cos A$ के बराबर है?

SSC CGL MAINS (08/08/2022)

- (a) $\sin A \cdot \cot A$ (b) $\cot A \cdot \cos A$
 (c) $\tan A \cdot \sin A$ (d) $\cos A \sin A$

5. $[(\sin\theta \tan\theta + \cos\theta)^2 - 1]$ is equal to:

$[(\sin\theta \tan\theta + \cos\theta)^2 - 1]$ इनमें से किसके बराबर है?

SSC Phase X 02/08/2022 (Shift- 02)

- (a) $\sec^2\theta$ (b) $\sec\theta$
 (c) $\operatorname{cosec}\theta$ (d) $\tan^2\theta$

6. For $0^\circ < \theta < 90^\circ$, $\frac{1}{\cos\theta} + \frac{1}{\tan\theta - \sec\theta}$ is equal to:

$0^\circ < \theta < 90^\circ$ के लिए, $\frac{1}{\cos\theta} + \frac{1}{\tan\theta - \sec\theta}$ बराबर है।

SSC CGL 17/08/2021 (Shift- 02)

- (a) $-\sec\theta$ (b) $\tan\theta$
 (c) $\sec\theta$ (d) $-\tan\theta$

7. The value of $\left(\frac{1}{\sin\theta} + \frac{1}{\tan\theta}\right)\left(\frac{1}{\sin\theta} - \frac{1}{\tan\theta}\right)$ is:

$\left(\frac{1}{\sin\theta} + \frac{1}{\tan\theta}\right)\left(\frac{1}{\sin\theta} - \frac{1}{\tan\theta}\right)$ का मान क्या होगा?

SSC CGL 18/07/2023 (Shift-02)

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

8. $(\operatorname{cosec} A - \cot A)(1 + \cos A) = ?$

SSC CGL 23/08/2021 (Shift- 02)

- (a) $\operatorname{cosec} A$ (b) $\cos A$
 (c) $\sin A$ (d) $\cot A$

9. $(\operatorname{cosec}\theta - \cot\theta)^2 =$, $0^\circ < \theta < 90^\circ$

SSC CHSL 09/06/2022 (Shift- 03)

- (a) $\frac{1 - \sin\theta}{1 + \cos\theta}$ (b) $\frac{1 - \cos\theta}{1 + \cos\theta}$
 (c) $\frac{1 + \cos\theta}{1 - \cos\theta}$ (d) $\frac{1 + \cos\theta}{1 - \sin\theta}$

10. The given expression is equal to:

$$\frac{(1 + \tan^2 A)}{\operatorname{cosec}^2 A \cdot \tan A}$$

$\frac{(1 + \tan^2 A)}{\operatorname{cosec}^2 A \cdot \tan A}$ की गई अभिव्यक्ति इसके बराबर है:

SSC CHSL 03/08/2023 (Shift-03)

- (a) $\sec^2 A$ (b) $\sec A$
 (c) $\tan A$ (d) $\tan A$

11. If θ is an acute angle and $\sin\theta + \operatorname{cosec}\theta = 2$, then the value of $\sin^{99}\theta + \operatorname{cosec}^{99}\theta$ is:

यदि θ न्यून कोण है और $\sin\theta + \operatorname{cosec}\theta = 2$ है तो $\sin^{99}\theta + \operatorname{cosec}^{99}\theta$ का मान क्या होगा?

SSC Phase X 02/08/2022 (Shift- 02)

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

12. If $\operatorname{cosec}^2\theta + \cot^2\theta = \frac{1}{3}$, where $0 \leq \theta \leq \frac{\pi}{2}$, then the value of $\operatorname{cosec}^4\theta - \cot^4\theta$ is:

यदि $\operatorname{cosec}^2\theta + \cot^2\theta = \frac{1}{3}$ है, जहाँ $0 \leq \theta \leq \frac{\pi}{2}$ है, तो $\operatorname{cosec}^4\theta - \cot^4\theta$ का मान है।

SSC CHSL 09/06/2022 (Shift- 01)

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

13. If $\operatorname{cosec}\theta + \cot\theta = 5$, then $\operatorname{cosec}\theta$ is equal to _____.

यदि $\operatorname{cosec}\theta + \cot\theta = 5$ है, तो $\operatorname{cosec}\theta$ का मान ज्ञात कीजिए।

SSC CHSL 03/06/2022 (Shift- 01)

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

14. If $\tan\theta + \cot\theta = 4$, then find the value of $\tan^2\theta + \cot^2\theta$.

यदि $\tan\theta + \cot\theta = 4$ है, तो $\tan^2\theta + \cot^2\theta$ का मान ज्ञात करें।

SSC CHSL 30/05/2022 (Shift- 01)

- (a) 10 (b) 12
(c) 16 (d) 14

15. The value of $\sin 18^\circ$ is given as $\frac{\sqrt{5}-1}{4}$. Using this value, find the value of $\cos 18^\circ$.

$\sin 18^\circ$ का मान $\frac{\sqrt{5}-1}{4}$ के रूप में दिया गया है। इस मान का उपयोग करते हुए $\cos 18^\circ$ का मान ज्ञात कीजिए।

SSC CHSL 30/05/2022 (Shift- 2)

- (a) $\frac{\sqrt{10+2\sqrt{5}}}{4}$ (b) $\frac{\sqrt{5}+1}{4}$
(c) $\frac{\sqrt{6}+\sqrt{2}}{4}$ (d) $\frac{\sqrt{10-2\sqrt{5}}}{4}$

16. The value of $\sin 18^\circ$ is given as $\frac{\sqrt{5}-1}{4}$. Find the value of $\operatorname{cosec} 18^\circ$.

$\sin 18^\circ$ का मान $\frac{\sqrt{5}-1}{4}$ के रूप में दिया गया है। $\operatorname{cosec} 18^\circ$ का मान ज्ञात कीजिए।

SSC CHSL 06/06/2022 (Shift- 02)

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

17. Simplify: $\frac{1+\sin t}{4-4\sin t} - \frac{1-\sin t}{4+4\sin t}$

$\frac{1+\sin t}{4-4\sin t} - \frac{1-\sin t}{4+4\sin t}$ का मान ज्ञात करें।

SSC CGL 21/07/2023 (Shift-04)

- (a) $4\tan t \cdot \sin t$ (b) $\tan t \cdot \sec t$
(c) $\tan t - \sin t$ (d) $\tan t + \sin t$

18. Which of the following is equal to

$$\left[\frac{\tan\theta + \sec\theta - 1}{\tan\theta - \sec\theta + 1} \right] ?$$

निम्न में से कौन $\left[\frac{\tan\theta + \sec\theta - 1}{\tan\theta - \sec\theta + 1} \right]$ के बराबर है?

SSC CGL MAINS (08/08/2022)

- (a) $\frac{1+\cos\theta}{\sin\theta}$ (b) $\frac{1+\cot\theta}{\tan\theta}$
(c) $\frac{1+\sin\theta}{\cos\theta}$ (d) $\frac{1+\tan\theta}{\cot\theta}$

19. The value of $\left(\frac{1-\cot\theta}{1-\tan\theta} \right)^2 - 1$ when $1^\circ < \theta < 90^\circ$, is equal to:

$\left(\frac{1-\cot\theta}{1-\tan\theta} \right)^2 - 1$ का मान बराबर है, जहाँ $1^\circ < \theta < 90^\circ$

SSC CGL 12/04/2022 (Shift- 02)

- (a) $\cos^2 - 1$ (b) $\sec^2\theta + 1$
(c) $\cot^2\theta - 1$ (d) $\sin^2\theta - 1$

20. The value of $1 + \sqrt{\frac{\cot\theta + \cos\theta}{\cot\theta - \cos\theta}}$, if $0^\circ < \theta < 90^\circ$, is equal to:

$1 + \sqrt{\frac{\cot\theta + \cos\theta}{\cot\theta - \cos\theta}}$ का मान बराबर है, यदि $0^\circ < \theta < 90^\circ$

SSC CGL 12/04/2022 (Shift- 02)

- (a) $1 - \sec\theta + \tan\theta$ (b) $1 - \sec\theta - \tan\theta$
(c) $1 + \sec\theta - \tan\theta$ (d) $1 + \sec\theta + \tan\theta$

21. The value of

$$\left(\frac{\sin A}{1 - \cos A} + \frac{1 - \cos A}{\sin A} \right) \div \left(\frac{\cot^2 A}{1 + \operatorname{cosec} A} + 1 \right) \text{ is :}$$

$$\left(\frac{\sin A}{1 - \cos A} + \frac{1 - \cos A}{\sin A} \right) \div \left(\frac{\cot^2 A}{1 + \operatorname{cosec} A} + 1 \right) \text{ का मान ज्ञात करें}$$

SSC CGL Tier-II (12/09/2019)

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

22. What is value of the expression

अभिव्यक्ति का मूल्य क्या है?

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

SSC CHSL 04/08/2023 Shift-01

- (a) $\sec A + \operatorname{cosec} A$ (b) $\sin A + \cos A$
(c) $\sin A - \cos A$ (d) $\sec A - \operatorname{cosec} A$

23. Find the value

$$\frac{(\sin \theta - \cos \theta) - (1 + \tan \theta + \cot \theta)}{1 + \sin \theta \cos \theta} = ?$$

$$\frac{(\sin \theta - \cos \theta) - (1 + \tan \theta + \cot \theta)}{1 + \sin \theta \cos \theta} \text{ का मान ज्ञात करें?}$$

SSC CGL Tier-II (13/09/2019)

- (a) $\sec \theta - \operatorname{cosec} \theta$ (b) $\operatorname{cosec} \theta - \sec \theta$
(c) $\sin \theta + \cos \theta$ (d) $\tan \theta + \cot \theta$

24. The value of $(\operatorname{cosec} A + \cot A + 1)(\operatorname{cosec} A - \cot A + 1) - 2\operatorname{cosec} A$ is

$(\operatorname{cosec} A + \cot A + 1)(\operatorname{cosec} A - \cot A + 1) - 2\operatorname{cosec} A$ का मान बराबर है।

SSC CGL 09/03/2020 (Shift- 02)

- (a) $4\operatorname{cosec} A$ (b) 2
(c) $2\operatorname{cosec} A$ (d) 0

25. $\cos A(\sec A - \cos A)(\cot A + \tan A) = ?$

SSC CGL 2019 Tier-II (15/10/2020)

- (a) $\sec A$ (b) $\cot A$
(c) $\sin A$ (d) $\tan A$

$$26. \left(\frac{1}{\cos \theta} - \frac{1}{\sin \theta} \right) + \frac{1}{\operatorname{cosec} \theta - \cot \theta} - \frac{1}{\sec \theta + \tan \theta} = ?$$

SSC CGL 2019 Tier-II (15/10/2020)

- (a) $\sec \theta \cdot \operatorname{cosec} \theta$ (b) $\sin \theta \cdot \tan \theta$
(c) $\operatorname{cosec} \theta \cdot \cot \theta$ (d) $\sin \theta \cdot \cos \theta$

27. The value of

$$\frac{\sec^2 \theta (2 + \tan^2 \theta + \cot^2 \theta) \div (\sin^2 \theta - \tan^2 \theta)}{(\operatorname{cosec}^2 \theta + \sec^2 \theta)(1 + \cot^2 \theta)^2} \text{ is:}$$

SSC CGL 2019 Tier-II (15/10/2020)

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

28. The value of $\frac{\sin \theta + \cos \theta - 1}{\sin \theta - \cos \theta + 1} \times \sqrt{\frac{1 + \sin \theta}{1 - \sin \theta}}$

$$\frac{\sin \theta + \cos \theta - 1}{\sin \theta - \cos \theta + 1} \times \sqrt{\frac{1 + \sin \theta}{1 - \sin \theta}} \text{ का मान ज्ञात करें।}$$

SSC CGL 2019 Tier-II (16/10/2020)

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

29. If $x \sin^3 \theta + y \cos^3 \theta = \sin \theta \cdot \cos \theta$ and $x \sin \theta = y \cos \theta$ then the value of $x^2 + y^2$ is :

यदि $x \sin^3 \theta + y \cos^3 \theta = \sin \theta \cdot \cos \theta$ तथा $x \sin \theta = y \cos \theta$ है तो $x^2 + y^2$ का मान ज्ञात कीजिए।

SSC CHSL 20/10/2020 (Shift- 01)

- (a) 0 (b) 4
(c) 1 (d) 2

30. Simplify the following expression:

निम्नलिखित व्यंजक को सरल कीजिए।

$$\frac{\cos A}{1 - \tan A} + \frac{\sin A}{1 - \cot A} - \sin A$$

SSC CGL 19/04/2022 (Shift- 03)

- (a) $1 + \sin A$ (b) $(1 + \sin A) \cos A$
(c) $\cos A$ (d) $1 + \cos A$

31. $\frac{\operatorname{cosec} \theta}{\operatorname{cosec} \theta - 1} + \frac{\operatorname{cosec} \theta}{\operatorname{cosec} \theta + 1} - \tan^2 \theta, 0^\circ < \theta < 90^\circ$, is equal to:

$$\frac{\operatorname{cosec} \theta}{\operatorname{cosec} \theta - 1} + \frac{\operatorname{cosec} \theta}{\operatorname{cosec} \theta + 1} - \tan^2 \theta, 0^\circ < \theta < 90^\circ \text{ का मान ज्ञात करें।}$$

SSC CGL 13/08/2021 (Shift- 01)

- (a) $2 \sec^2 \theta$ (b) $\sec^2 \theta + 1$
(c) $\sec^2 \theta$ (d) $1 - \tan^2 \theta$

32. $\frac{\cos \theta}{\sec \theta - 1} + \frac{\cos \theta}{\sec \theta + 1}$ is equal to:

$\frac{\cos \theta}{\sec \theta - 1} + \frac{\cos \theta}{\sec \theta + 1}$ के बराबर है:

SSC CHSL 02/08/2023 Shift-01

- (a) $2\sec^2 \theta$ (b) $2\cot^2 \theta$
(c) $2\cos^2 \theta$ (d) $2\sin^2 \theta$

33. $1 + 2 \tan^2 \theta + 2 \sin \theta \sec^2 \theta$, $0^\circ < \theta < 90^\circ$, is equal to :

$1 + 2 \tan^2 \theta + 2 \sin \theta \sec^2 \theta$, $0^\circ < \theta < 90^\circ$ का मान ज्ञात करें।

SSC CGL 16/08/2021 (Shift- 01)

- (a) $\frac{1 - \sin \theta}{1 + \sin \theta}$ (b) $\frac{1 + \cos \theta}{1 - \cos \theta}$
(c) $\frac{1 - \cos \theta}{1 + \cos \theta}$ (d) $\frac{1 + \sin \theta}{1 - \sin \theta}$

34. If $1 + 2 \tan^2 \theta + 2 \sin \theta \sec^2 \theta = a/b$, $0^\circ < \theta < 90^\circ$, then $\frac{a+b}{a-b} = ?$

यदि $1 + 2 \tan^2 \theta + 2 \sin \theta \sec^2 \theta = a/b$, $0^\circ < \theta < 90^\circ$ है तो $\frac{a+b}{a-b}$ का मान ज्ञात कीजिए।

SSC CGL MAINS 29/01/2022

- (a) $\sin \theta$ (b) $\cos \theta$
(c) $\operatorname{cosec} \theta$ (d) $\sec \theta$

35. $\frac{\cot^3 \theta}{\operatorname{cosec}^2 \theta} + \frac{\tan^3 \theta}{\sec^2 \theta} + 2 \sin \theta \cos \theta = ?$

SSC CGL 16/08/2021 (Shift-02)

- (a) $\operatorname{cosec} \theta \sec \theta$ (b) $\operatorname{cosec}^2 \theta \sec^2 \theta$
(c) $\sin \theta \cos \theta$ (d) $\sin \theta$

36. $\left(\sqrt{\sec^2 \theta \times \operatorname{cosec}^2 \theta} \right) \left(\frac{\sin \theta (1 + \cos \theta)}{1 + \cos \theta - \sin^2 \theta} \right)$,

$0^\circ < \theta < 90^\circ$ is equal to:

$\left(\sqrt{\sec^2 \theta \times \operatorname{cosec}^2 \theta} \right) \left(\frac{\sin \theta (1 + \cos \theta)}{1 + \cos \theta - \sin^2 \theta} \right)$, $0^\circ < \theta < 90^\circ$ का मान ज्ञात करें।

SSC CGL 17/08/2021 (Shift- 01)

- (a) $\cot \theta$ (b) $\operatorname{cosec}^2 \theta$
(c) $\sec^2 \theta$ (d) $\tan \theta$

37. Simplify: $\frac{(\sin \theta + \sec \theta)^2 (\cos \theta + \operatorname{cosec} \theta)^2}{(1 + \sec \theta \operatorname{cosec} \theta)^2}$, 0

$< \theta < 90^\circ$ is equal to:

$\frac{(\sin \theta + \sec \theta)^2 (\cos \theta + \operatorname{cosec} \theta)^2}{(1 + \sec \theta \operatorname{cosec} \theta)^2}$, $0 < \theta < 90^\circ$ सरल करें।

SSC CGL 24/08/2021 (Shift- 03)

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

38. $\left(\frac{\tan^3 \theta}{\sec^2 \theta} + \frac{\cot^3 \theta}{\operatorname{cosec}^2 \theta} + 2 \sin \theta \cos \theta \right) \div (1 + \operatorname{cosec}^2 \theta + \tan^2 \theta)$, $0^\circ < \theta < 90^\circ$ is equal to:

$\left(\frac{\tan^3 \theta}{\sec^2 \theta} + \frac{\cot^3 \theta}{\operatorname{cosec}^2 \theta} + 2 \sin \theta \cos \theta \right) \div (1 + \operatorname{cosec}^2 \theta + \tan^2 \theta)$, $0^\circ < \theta < 90^\circ$ का मान ज्ञात करें।

SSC CGL MAINS 29/01/2022

- (a) $\sin \theta \cos \theta$ (b) $\operatorname{cosec} \theta$
(c) $\sec \theta$ (d) $\operatorname{cosec} \theta \sec \theta$

39. Let $0^\circ < \theta < 90^\circ$, $(1 + \cot^2 \theta)(1 + \tan^2 \theta) \times (\sin \theta - \operatorname{cosec} \theta)(\cos \theta - \sec \theta)$ is equal to:

यदि $0^\circ < \theta < 90^\circ$, $(1 + \cot^2 \theta)(1 + \tan^2 \theta) \times (\sin \theta - \operatorname{cosec} \theta)(\cos \theta - \sec \theta)$ का मान ज्ञात करें।

SSC CGL MAINS 29/01/2022

- (a) $\sec \theta \operatorname{cosec} \theta$ (b) $\sec \theta + \operatorname{cosec} \theta$
(c) $\sin \theta + \cos \theta$ (d) $\sin \theta \cos \theta$

40. $\frac{(1 + \sec \theta \operatorname{cosec} \theta)^2 (\sec \theta - \tan \theta)^2 (1 + \sin \theta)}{(\sin \theta + \sec \theta)^2 + (\cos \theta + \operatorname{cosec} \theta)^2}$, 0° , $< \theta < 90^\circ$, is equal to:

$\frac{(1 + \sec \theta \operatorname{cosec} \theta)^2 (\sec \theta - \tan \theta)^2 (1 + \sin \theta)}{(\sin \theta + \sec \theta)^2 + (\cos \theta + \operatorname{cosec} \theta)^2}$ का मान ज्ञात करें।

SSC CGL MAINS 29/01/2022

- (a) $1 - \cos \theta$ (b) $1 - \sin \theta$
(c) $\cos \theta$ (d) $\sin \theta$

41. $\frac{1 + \cos \theta - \sin^2 \theta}{\sin \theta (1 + \cos \theta)} \times \frac{\sqrt{\sec^2 \theta + \operatorname{cosec}^2 \theta}}{\tan \theta + \cot \theta}$, $0^\circ < \theta < 90^\circ$.

SSC CGL MAINS 29/01/2022

- (a) $\tan \theta$ (b) $\sec \theta$
(c) $\operatorname{cosec} \theta$ (d) $\cot \theta$

42. The expression $(\tan \theta + \cot \theta)(\sec \theta + \tan \theta)(1 - \sin \theta)$, $0^\circ < \theta < 90^\circ$, is equal to:

व्यंजक $(\tan \theta + \cot \theta)(\sec \theta + \tan \theta)(1 - \sin \theta)$, $0^\circ < \theta < 90^\circ$ का मान ज्ञात करें।

SSC CGL MAINS 03/02/2022

- (a) $\sec \theta$ (b) $\operatorname{cosec} \theta$
(c) $\cot \theta$ (d) $\sin \theta$

43. The expression

$$\frac{\tan^6 \theta - \sec^6 \theta + 3 \sec^2 \theta \tan^2 \theta}{\tan^2 \theta + \cot^2 \theta + 2} \quad 0^\circ < \theta < 90^\circ, \text{ is}$$

equal to:

व्यंजक $\frac{\tan^6 \theta - \sec^6 \theta + 3 \sec^2 \theta \tan^2 \theta}{\tan^2 \theta + \cot^2 \theta + 2}$, $0^\circ < \theta < 90^\circ$

का मान ज्ञात करें।

SSC CGL MAINS 03/02/2022

- (a) $\sec^2 \theta \operatorname{cosec}^2 \theta$ (b) $-\sec^2 \theta \operatorname{cosec}^2 \theta$
(c) $\cos^2 \theta \sin^2 \theta$ (d) $-\cos^2 \theta \sin^2 \theta$

44. If $4\sin^2 \theta = 3(1 + \cos \theta)$, $0^\circ < \theta < 90^\circ$, then what is the value of $(2\tan \theta + 4\sin \theta - \sec \theta)$?

यदि $4\sin^2 \theta = 3(1 + \cos \theta)$, $0^\circ < \theta < 90^\circ$ है तो $(2\tan \theta + 4\sin \theta - \sec \theta)$ का मान ज्ञात कीजिए।

SSC CGL 11/04/2022 (Shift- 01)

- (a) $3\sqrt{15} - 4$ (b) $15\sqrt{3} - 4$
(c) $15\sqrt{3} + 3$ (d) $4\sqrt{15} - 3$

45. If $\tan^2 A + 2\tan A - 63 = 0$ Given that $0 < A < \frac{\pi}{4}$ what is the value of $(2\sin A + 5\cos A)$?

यदि $\tan^2 A + 2\tan A - 63 = 0$ दिया है $0 < A < \frac{\pi}{4}$, तो $(2\sin A + 5\cos A)$ का मान ज्ञात कीजिए।

SSC CGL 11/04/2022 (Shift- 03)

- (a) $19\sqrt{50}$ (b) $15\sqrt{50}$
(c) $\frac{19}{\sqrt{50}}$ (d) $\frac{15}{\sqrt{50}}$

46. If $3\sec^2 \theta + \tan \theta - 7 = 0$, $0^\circ < \theta < 90^\circ$, then what is the value of $\left(\frac{2\sin \theta + 3\cos \theta}{\operatorname{cosec} \theta + \sec \theta}\right)$?

यदि $3\sec^2 \theta + \tan \theta - 7 = 0$, $0^\circ < \theta < 90^\circ$ दिया है तो $\left(\frac{2\sin \theta + 3\cos \theta}{\operatorname{cosec} \theta + \sec \theta}\right)$ का मान ज्ञात कीजिए।

SSC CGL 12/04/2022 (Shift- 01)

- (a) 10 (b) $5/2$
(c) $5/4$ (d) $4\sqrt{2}$

47. If $\sin^2 \theta - \cos^2 \theta - 3\sin \theta + 2 = 0$, $0^\circ < \theta < 90^\circ$, Then what is the value of $1 + \sec \theta + \tan \theta$?

यदि $\sin^2 \theta - \cos^2 \theta - 3\sin \theta + 2 = 0$, $0^\circ < \theta < 90^\circ$ दिया है तो $1 + \sec \theta + \tan \theta$ का मान ज्ञात कीजिए।

SSC CGL 13/04/2022 (Shift- 03)

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

48. If $7\sin^2 \theta + 4\cos^2 \theta = 5$ and θ lies in the first quadrant, then what is the value of

$$\frac{\sqrt{3} \sec \theta + \tan \theta}{\sqrt{2} \cot \theta - \sqrt{3} \cos \theta}?$$

यदि $7\sin^2 \theta + 4\cos^2 \theta = 5$ and θ पहले चतुर्थांश में स्थित है, तो $\frac{\sqrt{3} \sec \theta + \tan \theta}{\sqrt{2} \cot \theta - \sqrt{3} \cos \theta}$ का मान क्या होगा?

SSC CGL MAINS 29/01/2022

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

49. If $\frac{\sin^2 \theta}{\cos^2 \theta - 3\cos \theta + 2} = 1$, θ lies in the first

quadrant, then the value of $\frac{\tan^2 \frac{\theta}{2} + \sin^2 \frac{\theta}{2}}{\tan \theta + \sin \theta}$ is:

यदि $\frac{\sin^2 \theta}{\cos^2 \theta - 3\cos \theta + 2} = 1$, θ चतुर्थांश में स्थित है,

तो $\frac{\tan^2 \frac{\theta}{2} + \sin^2 \frac{\theta}{2}}{\tan \theta + \sin \theta}$ का मान ज्ञात कीजिए।

SSC CGL MAINS 03/02/2022

- (a) $\frac{2\sqrt{3}}{27}$ (b) $\frac{5\sqrt{3}}{27}$
(c) $\frac{2\sqrt{3}}{9}$ (d) $\frac{7\sqrt{3}}{54}$

50. If $\sec \theta + \tan \theta = p$, then if $\sec \theta$ is equal to:

यदि $\sec \theta + \tan \theta = p$ है, तो $\sec \theta$ का मान ज्ञात करें।

- (a) $\left(P - \frac{1}{P}\right), P \neq 0$ (b) $2\left(P - \frac{1}{P}\right), P \neq 0$
(c) $\left(P + \frac{1}{P}\right), P \neq 0$ (d) $\frac{1}{2}\left(P + \frac{1}{P}\right), P \neq 0$

51. If $\sec^2\theta + \tan^2\theta = \frac{25}{18}$, then the value of $\sec^4\theta - \tan^4\theta$ is:

यदि $\sec^2\theta + \tan^2\theta = \frac{25}{18}$ है, तो $\sec^4\theta - \tan^4\theta$ का मान ज्ञात करें।

SSC CGL 14/07/2023 (Shift-3)

- (a) $\frac{18}{25}$ (b) $\frac{25}{12}$
(c) $\frac{25}{9}$ (d) $\frac{25}{18}$

52. If $\operatorname{cosec} \theta - \cot \theta = \frac{7}{2}$, the value of $\operatorname{cosec} \theta$ is:

यदि $\operatorname{cosec} \theta - \cot \theta = \frac{7}{2}$ है, तो θ का मान ज्ञात करें।

- (a) $\frac{47}{28}$ (b) $\frac{51}{28}$
(c) $\frac{53}{28}$ (d) $\frac{49}{28}$

53. If $\sec\theta + \tan\theta = 2 + \sqrt{5}$, then the value of $\sin\theta$ is ($0^\circ \leq \theta \leq 90^\circ$)

यदि $\sec\theta + \tan\theta = 2 + \sqrt{5}$ है, तो $\sin\theta$ का मान ज्ञात करें। ($0^\circ \leq \theta \leq 90^\circ$)

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

54. If $\sec\theta + \tan\theta = 2 + \sqrt{5}$, then the value of $\sin\theta + \cos\theta$ is:

यदि $\sec\theta + \tan\theta = 2 + \sqrt{5}$ है, तो $\sin\theta + \cos\theta$ का मान ज्ञात करें।

- (a) $\frac{3}{\sqrt{5}}$
(b) $\sqrt{5}$
(c) $\frac{7}{\sqrt{5}}$
(d) $\frac{1}{\sqrt{5}}$

Questions Based on Condition

As in $\theta + B\cos\theta = X$;

$A\cos\theta - B\sin\theta = Y$ then

$$A^2 + B^2 = X^2 + Y^2$$

$$a \sin\theta + b \cos\theta = \sqrt{a^2 + b^2}$$

55. If $3\sin\theta + 4\cos\theta = 5$, then $\tan\theta = ?$

यदि $3\sin\theta + 4\cos\theta = 5$ है तो $\tan\theta$ का मान ज्ञात कीजिए।

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

56. If $2xy \sin\theta + (x^2 - y^2) \cos\theta = x^2 + y^2$, then $\tan\theta = ?$

यदि $2xy \sin\theta + (x^2 - y^2) \cos\theta = x^2 + y^2$ है तो $\tan\theta$ का मान ज्ञात कीजिए।

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

57. If $12\sin\theta + 35\cos\theta = 37$, then $\operatorname{cosec}\theta = ?$

यदि $12\sin\theta + 35\cos\theta = 37$ है तो $\operatorname{cosec}\theta$ का मान ज्ञात कीजिए।

- (a) $\frac{12}{37}$ (b) $\frac{37}{12}$
(c) $\frac{35}{37}$ (d) $\frac{12}{35}$

58. $(a^2 - 1)\sin\theta + 2a \cos\theta = a^2 + 1$, then $\tan\theta = ?$

$(a^2 - 1)\sin\theta + 2a \cos\theta = a^2 + 1$ है तो $\tan\theta$ का मान ज्ञात कीजिए।

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

59. If $3 \sin x + 4 \cos x = 2$, then the value of $3 \cos x - 4 \sin x$ is equal to :

यदि $3 \sin x + 4 \cos x = 2$ है तो $3 \cos x - 4 \sin x$ का मान ज्ञात कीजिए।

SSC CGL 2019 Tier-II (18/10/2020)

- (a) $\sqrt{21}$ (b) $\sqrt{23}$
(c) 21 (d) $\sqrt{29}$

60. If $2 \cos \theta - \sin \theta = \frac{1}{\sqrt{2}}$, ($0^\circ < \theta < 90^\circ$) the value of $2 \sin \theta + \cos \theta$ is :

यदि $2 \cos \theta - \sin \theta = \frac{1}{\sqrt{2}}$, ($0^\circ < \theta < 90^\circ$) है तो $2 \sin \theta + \cos \theta$ का मान ज्ञात कीजिए।

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

61. If $\sin \theta + \cos \theta = \frac{\sqrt{11}}{3}$, then the value of $(\cos \theta - \sin \theta)$ is:

यदि $\sin \theta + \cos \theta = \frac{\sqrt{11}}{3}$, तो $(\cos \theta - \sin \theta)$ का मान है:

SSC CPO 03/10/2023 (Shift-3)

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

62. If $3 \sin \theta + 5 \cos \theta = 5$, then $5 \sin \theta - 3 \cos \theta$ is equal to:

यदि $3 \sin \theta + 5 \cos \theta = 5$ है तो $5 \sin \theta - 3 \cos \theta$ का मान ज्ञात करें।

- (a) ± 3 (b) ± 5
(c) 1 (d) ± 2

63. If $\cos A + \cos^2 A = 1$, then the value of $\sin^4 A + \sin^6 A$ is :

यदि $\cos A + \cos^2 A = 1$, तो $\sin^4 A + \sin^6 A$ का मान क्या होगा?

SSC CGL 26/07/2023 (Shift-1)

- (a) 2 (b) $\cos A$
(c) 1 (d) $\sin A$

64. If $\tan^4 \theta + \tan^2 \theta = 1$, what is the value of $11(\cos^4 \theta + \cos^2 \theta)$?

यदि $\tan^4 \theta + \tan^2 \theta = 1$, तो $11(\cos^4 \theta + \cos^2 \theta)$ का मान क्या होगा?

SSC CGL 27/07/2023 (Shift-3)

- (a) -11 (b) 8
(c) 0 (d) 11

65. If $\cos x + \cos^2 x = 1$, the numerical value of $(\sin^{12} x + 3 \sin^{10} x + 3 \sin^8 x + \sin^6 x - 1)$ is:

यदि $\cos x + \cos^2 x = 1$ है, तो $(\sin^{12} x + 3 \sin^{10} x + 3 \sin^8 x + \sin^6 x - 1)$ का आंकिक मान है।

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

66. If $\sin \theta + \sin^2 \theta = 1$, then the value of $\cos^2 \theta + \cos^4 \theta$ is:

यदि $\sin \theta + \sin^2 \theta = 1$ है, तो $\cos^2 \theta + \cos^4 \theta$ का मान ज्ञात करें।

- (a) 2 (b) 4
(c) 0 (d) 1

67. If $\sin A + \sin^2 A = 1$, then the value of $\cos^4 A + \cos^6 A$ is:

यदि $\sin A + \sin^2 A = 1$ है, तो $\cos^4 A + \cos^6 A$ का मान क्या होगा?

SSC CPO 04/10/2023 (Shift-01)

- (a) 1 (b) $\cos A$
(c) $\sin A$ (d) 0

68. If $\sin \theta + \sin^2 \theta = 1$ then the value of $\cos^{12} \theta + 3 \cos^{10} \theta + 3 \cos^8 \theta + \cos^6 \theta - 1$ is:

यदि $\sin \theta + \sin^2 \theta = 1$ है, तो $\cos^{12} \theta + 3 \cos^{10} \theta + 3 \cos^8 \theta + \cos^6 \theta - 1$ का मान ज्ञात करें।

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

69. If $\tan A + \cot A = 2$, then the value of $\tan^{10} A + \cot^{10} A$ is:

यदि $\tan A + \cot A = 2$ है, तो $\tan^{10} A + \cot^{10} A$ का मान ज्ञात करें।

- (a) 4 (b) 2
(c) 2^{10} (d) 1

70. If $\sin \theta + \operatorname{cosec} \theta = 2$, then the value of $\sin^{100} \theta + \operatorname{cosec}^{100} \theta$ is equal to:

यदि $\sin \theta + \operatorname{cosec} \theta = 2$ है, तो $\sin^{100} \theta + \operatorname{cosec}^{100} \theta$ का मान ज्ञात करें।

- (a) 1 (b) 2
(c) 3 (d) 100

71. If $\sin \theta + \operatorname{cosec} \theta = 2$, then the value of $\sin^9 \theta + \operatorname{cosec}^9 \theta$ is:

यदि $\sin \theta + \operatorname{cosec} \theta = 2$ है, तो $\sin^9 \theta + \operatorname{cosec}^9 \theta$ का मान ज्ञात करें।

- (a) 3 (b) 2
(c) 4 (d) 1

72. If $\tan \theta + \cot \theta = 2$, then the value of $\tan^n \theta + \cot^n \theta$ ($0^\circ \leq \theta < 90^\circ$, n is an integer) is:

यदि $\tan \theta + \cot \theta = 2$ है, तो $\tan^n \theta + \cot^n \theta$ का मान ज्ञात कीजिए। ($0^\circ \leq \theta < 90^\circ$, n एक पूर्णांक है।)

- (a) 2 (b) 2^n
(c) $2n$ (d) 2^{n+1}

ANSWER KEY

1.(d)	2.(c)	3.(b)	4.(c)	5.(d)	6.(d)	7.(a)	8.(c)	9.(b)	10.(c)
11.(d)	12.(c)	13.(c)	14.(d)	15.(a)	16.(d)	17.(b)	18.(c)	19.(c)	20.(d)
21.(d)	22.(a)	23.(a)	24.(b)	25.(b)	26.(a)	27.(a)	28.(a)	29.(c)	30.(c)
31.(b)	32.(b)	33.(d)	34.(c)	35.(a)	36.(c)	37.(d)	38.(a)	39.(a)	40.(b)
41.(d)	42.(b)	43.(d)	44.(a)	45.(c)	46.(c)	47.(c)	48.(a)	49.(d)	50.(d)
51.(d)	52.(c)	53.(b)	54.(a)	55.(a)	56.(a)	57.(b)	58.(a)	59.(a)	60.(c)
61.(d)	62.(a)	63.(b)	64.(d)	65.(c)	66.(d)	67.(c)	68.(d)	69.(b)	70.(b)
71.(b)	72.(a)								