

## MATHS

### BOOKS - CHHAYA PUBLICATION MATHS (BENGALI ENGLISH)

#### GENERAL SOLUTIONS OF TRIGNOMETRIC EQUATIONS

##### Example

1. Find the general values of  $\theta$  which satisfy the equation  $\sin^2 \theta = \frac{3}{4}$



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2. Find the values of  $\theta$  which satisfy  $\tan^2 \theta = \frac{1}{3}$ ,  $-\pi \leq \theta \leq \pi$ .



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$$3. \sec x = -\sqrt{2}.$$



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$$4. \cos 4x = \sin 3x$$



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$$5. \tan mx = \cot nx$$



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$$6. \sin \theta + \sin 5\theta = \sin 3\theta (0 \leq \theta \leq 2\pi)$$



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$$7. \sin \theta - 2 = \cos 2\theta \text{ when } 0 \leq \theta \leq 2\pi$$



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$$8. 2\sin^2 x + \sin^2 2x = 2$$



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$$9. \cos x + \sin x = \cos 2x + \sin 2x$$



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$$10. \tan 3\theta = \tan 2\theta + \tan \theta$$



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$$11. \sin 4\theta \cos 2\theta = \cos 5\theta \sin \theta$$



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$$12. \sin^3 \theta = \tan 2\theta + \tan \theta$$



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$$13. 4 \cos^2 x \sin x - 2 \sin^2 x = 3 \sin x$$



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$$14. 2 - \cos x = 2 \tan\left(\frac{x}{2}\right)$$



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$$15. \text{The solution of } \sin^8 x + \cos^8 x = \frac{17}{32}$$



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$$16. \text{Solve: } \sqrt{3} \cos x + \sin x = 1 (-2\pi < x < 2\pi).$$



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17. Solve:  $5 \sin \theta + 2 \cos \theta = 5$ , given  $\tan 21^\circ 48' = \frac{2}{5}$



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18. Solve:  $\sec \theta - 1 = (\sqrt{2} - 1) \tan \theta$ .



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19. If  $\sec ax + \sec bx = 0$  then show that, the values of x form an A.P.



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20.  $x = \frac{2\pi}{3}$  is a solution of the equations  $5x - 2 = 7 + 4 \cos ec 3x$ . Is the statement true? Give reason.



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**21.** Solve:  $4 \sin^4 x + \cos^4 x = 1$



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**22.** If  $\sin(\pi \cos \theta) = \cos(\pi \sin \theta)$ , show that,  $\pm \cos\left(\theta \pm \frac{\pi}{4}\right) = \frac{4n \pm 1}{2\sqrt{2}}$ ,

where n= any integer.



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**23.** If  $\sin A = \sin B$  and  $\cos A = \cos B$  then prove that, either  $A=B$  or they differ by multiples of four right angles.



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**24.** If  $32 \tan^8 \theta = 2 \cos^2 \alpha - 3 \cos \alpha$  and  $3 \cos 2\theta = 1$ , then find the general values of  $\alpha$ .



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25. Show that the following two equations represent the same set of angles.

$$x + \frac{\pi}{4} = n\pi + (-1)^n \cdot \frac{\pi}{6} \text{ and } x - \frac{\pi}{4} = 2n\pi \pm \frac{\pi}{3}$$



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26. Solve:  $4 \sin \theta \sin 2\theta \sin 4\theta = \sin 3\theta$



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27. Obtain the general solution of the following equations :

$$\sin x (3 - 4 \sin^2 x) \cos 2y - 2 \cos x \sin y \cos y (4 \cos^2 x - 3) = \frac{1}{\sqrt{3}}, (2 \cos^2 x$$



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**28.** Find the general values of  $x$  and  $y$  satisfying the equations

$$5 \sin x \cos y = 1, 4 \tan x = \tan y$$



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**29.** Solve:  $2 + 2 \cos 2x \cos 5x = \sin^2 2x$



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**30.** Solve:  $16^{\sin^2 x} + 16^{\cos^2 x} = 10 (0 \leq x \leq \pi)$ .



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**31.** Solve:  $13(\cos^3 y + 3 \cos y \sin^2 y) = 14(\sin^3 y + 3 \cos^2 y \sin y)$



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## Exercise Multiple Choice Questions

1. The general solution of  $\cos \theta = 0$  is

A.  $\theta = n\pi$

B.  $\theta = (2n + 1)\frac{\pi}{2}$

C.  $\theta = 2n\pi$

D.  $\theta = (2n - 1)\frac{\pi}{2}$

**Answer: B**



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2. The general solution of  $\operatorname{cosec}\theta = \operatorname{cosec}\alpha (\alpha \neq 0)$  is

A.  $\theta = n\pi + \alpha$

B.  $\theta = n\pi - \alpha$

C.  $\theta = n\pi + (-1)^n\alpha$

D.  $\theta = n\pi\alpha$

**Answer: C**



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3. The general solutions of the equation  $\sin \theta = \cos \theta$  is

A.  $\theta = \frac{n\pi}{4}$

B.  $\theta = (2n + 1)\frac{\pi}{4}$

C.  $\theta = n\pi + \frac{\pi}{4}$

D.  $\theta = \frac{\pi}{4}$

**Answer: C**



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4. State which of the following is true?

A.  $\tan x + \cot x = \sec x$  cosec  $x$  is solvable.

B.  $x = \frac{\pi}{4}$  is a root of the equation  $3x + 4 = 6 - 5 \tan 2x$ .

C. The equation  $\tan^2 \theta - \tan \theta + 1 = 0$  is not solvable

D. The equation  $a \cos \theta + \cos \theta = 2$  is solvable.

**Answer: C**



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5. The equation  $a \cos \theta + b \sin \theta = c$  is solvable when -

A.  $c^2 \leq a^2 + b^2$

B.  $c^2 \geq a^2 + b^2$

C.  $c^2 = a^2 + b^2$

D. none of these

**Answer: A**



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6. State which of the following is the general solution of the equation  $\tan 3x = 1$ ?

A.  $n\pi + \frac{\pi}{12}$

B.  $\frac{11\pi}{4}, \frac{7\pi}{2}$

C.  $\frac{n\pi}{3} + \frac{\pi}{12}$

D.  $\frac{n\pi}{3} + \frac{\pi}{4}$

**Answer: C**



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7. State which of the following represents the solution of the equation  $\sin \phi = \cos \phi (2\pi < \phi < 4\pi)$ ?

A.  $\frac{5\pi}{2}, 3\pi$

B.  $\frac{11\pi}{4}, \frac{7\pi}{2}$

C.  $\frac{15\pi}{4}, \frac{11\pi}{4}$

D.  $\frac{9\pi}{4}, \frac{13\pi}{4}$

**Answer: D**



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8. State which of the following is the general solution of the equation

$$\sec \theta = -\frac{2}{\sqrt{3}}?$$

A.  $45^\circ$  and  $225^\circ$

B.  $2n\pi \pm \frac{5\pi}{6}$

C.  $n\pi \pm \frac{\pi}{6}$

D.  $n\pi \pm \frac{5\pi}{6}$

**Answer: B**



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9. If  $\tan \theta = 1$  and  $0^\circ \leq \theta \leq 360^\circ$ , state which of the following represents the values of  $\theta$ ?

A.  $45^\circ$  and  $225^\circ$

B.  $45^\circ$  and  $135^\circ$

C.  $45^\circ$  and  $315^\circ$

D.  $45^\circ$  and  $210^\circ$

**Answer: A**



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10. The general solution of the equation  $\sin(\theta) = 1$  is

A.  $\theta = (2n + 1)\frac{\pi}{4}$

B.  $\theta = (4n + 1)\frac{\pi}{2}$

C.  $\theta = (2n + 1)\pi$

D.  $\theta = \frac{\pi}{2}$

**Answer: B**



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11. The general solution of the equation  $\cot \theta = \cot \alpha (\alpha \neq 0)$  is-

A.  $\theta = n\pi + \alpha$

B.  $\theta = n\pi + \frac{\alpha}{2}$

C.  $\theta = n\pi - \alpha$

D.  $\theta = \alpha$

**Answer: A**



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### Very Short Answer Type Questions

1.  $\sin 2\theta = \cos 3\theta (0 < \theta < \pi)$



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$$2. \cos 2\theta - \cos 4\theta = 0 (0^\circ < \theta < 360^\circ)$$



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$$3. (2 \sin^2 x - 1) + 1 = 0$$



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$$4. \cos m\theta - \sin n\theta = 0$$



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$$5. \cos m\theta + \cos n\theta = 0$$



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$$6. \ 3\sin^2\theta + 7\cos^2\theta = 6$$



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$$7. \ \tan p\theta = \cot q\theta$$



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$$8. \ \tan 5\theta + \cot 2\theta = 0$$



**Watch Video Solution**

$$9. \ \sin 5\theta + \sin 2\theta = 0$$



**Watch Video Solution**

$$10. \ \tan^2 x = 3\operatorname{cosec}^2 x - 1$$



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$$11. \tan x + \cot x = 2$$



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$$12. \cot \theta - \tan \theta = 2$$



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$$13. \tan^2 x + \cot^2 x = 2$$



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$$14. 4 \sin 4\theta + 1 = \sqrt{5}$$



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$$15. 4 \sin 4\theta - 1 = \sqrt{5}$$



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$$16. 4 \cos^2 x + \sqrt{3} = 2(\sqrt{3} + 1)$$



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$$17. \sec^3 \theta - 2 \tan^2 \theta = 2$$



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$$18. \sec \theta + \operatorname{cosec} \theta = 2\sqrt{2}$$



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**Short Answer Type Questions**

$$1. \tan \theta + \cot 2\theta = 2$$



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$$2. \cot \theta + \tan \theta = 2 \sec \theta (0^\circ < \theta < 360^\circ)$$



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$$3. \cot 2x = \cos x + \sin x$$



**Watch Video Solution**

$$4. \sin x + \cos x = \sqrt{2} \cos 2x$$



**Watch Video Solution**

$$5. \cot x - \cot 2x = 2$$



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$$6. \cos x + \cos 2x + \cos 3x = 0$$



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$$7. \sin 2x + \sin 4x + \sin 6x = 0$$



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$$8. \cos x - \sin 3x = \cos 2x$$



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$$9. \sin \theta + \sin 2\theta + \sin 3\theta + \sin 4\theta = 0$$



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$$10. \sin 3x + \sin x = \cos 6x + \cos 4x$$



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$$11. \sin 5x - \sin 3x - \sin x = 0 (0^\circ < x < 360^\circ)$$



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$$12. \cos 4\theta = \cos 3\theta - \cos 2\theta$$



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$$13. \sin 5x \cos 3x = \sin 9x \cos 7x$$



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$$14. \cos 9x \cos 7x = \cos 5x \cos 3x \quad \left[ -\frac{\pi}{4} \leq x \leq \frac{\pi}{4} \right]$$



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$$15. 2\sin^2 \theta + 3\cos \theta = 0$$



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$$16. \cos^2 \theta - \sin \theta = \frac{1}{4} (0^\circ < \theta < 360^\circ)$$



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$$17. 2\cos^2 \theta - \sin \theta + 1 = 0 (0^\circ < \theta < 1000^\circ)$$



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$$18. \cos 2x - 5\cos x + 3 = 0 (0 < x < 2\pi)$$



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$$19. 3(\sec^2 \theta + \tan^2 \theta) = 5 (\theta^\circ < \theta < 360^\circ)$$



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$$20. 2(\sec^2 \theta + \sin^2 \theta) = 5$$



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$$21. \cos \theta - \sin \theta = \frac{1}{\sqrt{2}} (-\pi < \theta < \pi)$$



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$$22. \sin \theta - \sqrt{3} \cos \theta = 1$$



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$$23. \sin x + \cos x = \frac{1}{\sqrt{2}}$$



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$$24. \sqrt{3} \sin x + \cos x = \sqrt{2}$$



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$$25. \sin 2\theta - \cos 2\theta = 1$$



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$$26. \sin \theta + 2 \cos \theta = 1$$



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$$27. \tan^2 x - (1 + \sqrt{3}) \tan x + \sqrt{3} = 0$$



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$$28. \tan x + \tan 2x + \tan x \tan 2x = 1$$



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$$29. \tan \theta + \tan 2\theta + \sqrt{3} \tan \theta \tan 2\theta = \sqrt{3}$$



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$$30. \tan\left(\frac{\pi}{4} + \theta\right) + \tan\left(\frac{\pi}{4} - \theta\right) = 4$$



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$$31. \frac{\sin \alpha}{\sin 2x} + \frac{\cos \alpha}{\cos 2x} = 2$$



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$$32. \sqrt{3} \tan \theta \tan\left(\theta + \frac{\pi}{3}\right) \tan\left(\theta + \frac{2\pi}{3}\right) = 1$$



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$$33. (2 + \sqrt{3})\cos \theta = 1 - \sin \theta$$



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$$34. \cos 2\theta = (\sqrt{2} + 1) \left( \cos \theta - \frac{1}{\sqrt{2}} \right)$$



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$$35. \cos 3\theta + \cos 2\theta = \sin\left(\frac{3\theta}{2}\right) + \sin\left(\frac{\theta}{2}\right), 0 \leq \theta \leq 2\pi$$



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$$36. \cos 3x + \sin\left(2x - \frac{7\pi}{6}\right) = -2$$



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$$37. \sin 7x + \cos 2x = -2$$



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$$38. 3 \tan\left(\theta - \frac{\pi}{12}\right) = \tan\left(\theta + \frac{\pi}{12}\right)$$



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$$39. \sec 4\theta - \sec 2\theta = 2$$



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$$40. \sin x + \cos x = \frac{\cos 2x}{1 - \sin 2x}$$



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$$41. \tan \theta + \tan\left(\frac{\pi}{3} + \theta\right) + \tan\left(\frac{2\pi}{3} + \theta\right) = 3$$



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$$42. 4 \cos \theta \cos 2\theta \cos 3\theta - 2 \cos 4\theta = 1$$



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$$43. 2 \cos \theta - \cos 5\theta = 16 \sin^2 \theta \cos^3 \theta$$



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$$44. x - y = \frac{\pi}{4} \text{ and } \cot x + \cot y = 2$$



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45. Find the general values of  $\theta$  which satisfy  $2\cos\theta + 1 = 0$  and  $2\sin\theta - \sqrt{3} = 0$

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46. If  $\cos x + \sin x = \cos \alpha - \sin \alpha$ , prove that,

$$x - \frac{\pi}{4} = 2n\pi \pm \left(\alpha + \frac{\pi}{4}\right)$$

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47. If  $\tan ax = \tan bx$  ( $a \neq b$ ), show that the values of  $x$  from an A.P.

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48. Show that the three equations  $\sin^2 \theta = \sin^2 \alpha$ ,  $\cos^2 \theta = \cos^2 \alpha$  and  $\tan^2 \theta = \tan^2 \alpha$  are all identical and the solution of each equation is  $n\pi \pm \alpha$ .



49. Solve (general solution is not needed):

$$\tan x + \tan y = 2, 2 \cos x \cos y = 1$$



50. Find the least positive values of  $x$  and  $y$ :

$$\sin(x - y) = \frac{1}{2}, \cos(x + y) = \frac{1}{2}.$$



51. Find the least positive values of  $x$  and  $y$  so that

$$2(\sin x + \sin y) - 2 \cos(x - y) = 3.$$



$$1. 4 \sin \theta \cos \theta = 1 + 2 \cos \theta - 2 \sin \theta (0 < \theta < \pi)$$



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$$2. 1 + 2 \sin \theta \cos \theta - 2 \sin \theta - \cos \theta = 0 (0^\circ \leq \theta \leq 360^\circ)$$



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$$3. (1 - 2 \sin \theta - 2 \cos \theta + \cot \theta) = 0 (0 < \theta < 2\pi)$$



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$$4. \tan x + \tan 2x + \tan 3x = 0$$



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$$5. \tan x + \tan 2x + \tan 3x = \tan x \tan 2x \tan 3x$$



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$$6. \tan 3\theta + \tan \theta = 2 \tan 2\theta$$



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$$7. \sin 2\theta \tan \theta + 1 = \sin 2\theta + \tan \theta$$



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$$8. \cos^3 \theta \sin 3\theta + \sin^3 \theta \cos 3\theta = \frac{3}{4}$$



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$$9. 5 \cos \theta + 2 \sin \theta = 2, \text{ given } \tan 68^\circ 12' = \frac{5}{2}$$



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$$10. 4 \cos x + 5 \sin x = 5, \text{ given } \tan 51^\circ 21' = \frac{5}{4}$$



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$$11. 1 + \sin^2 \theta = 3 \sin \theta \cos \theta, \text{ given } \cot 18^\circ 26' = 3$$



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$$12. \tan \theta + \sec \theta = \sqrt{3}$$



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$$13. (1 - \tan \theta)(1 + \sin 2\theta) = (1 + \tan \theta)$$



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$$14. (\sec \theta + 1) = (2 + \sqrt{3}) \tan \theta (0 < \theta < 2\pi)$$



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$$15. \cot \theta + \cot\left(\frac{\pi}{4} + \theta\right) = 2$$



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$$16. \cot^3 \theta + 6\operatorname{cosec} 2\theta - 8\operatorname{cosec}^3 2\theta = 0$$



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$$17. \tan^2 2x + \cot^2 2x + 2 \tan 2x + 2 \cot 2x = 6$$



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$$18. \sin^3 x + \sin^3\left(x - \frac{2\pi}{3}\right) + \sin^3\left(x + \frac{2\pi}{3}\right) = 0$$



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$$19. 2 \tan x = \sin 4x - 2 \sin 2x \cos 2x \tan^2 x$$



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$$20. \sin 3\alpha = 4 \sin \alpha \sin(x + \alpha) \sin(x - \alpha)$$



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$$21. \cos 3x \cos^3 x + \sin 3x \sin^3 x = 0$$



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$$22. \text{(i) Solve: } \cos(2x + 3y) = \frac{1}{2}, \cos(3x + 2y) = \frac{\sqrt{3}}{2}$$

(ii) If  $0 < x < \pi$ ,  $0 < y < \pi$  and  $\cos x + \cos y - \cos(x + y) = \frac{3}{2}$ , prove that  $x = y = \frac{\pi}{3}$ .



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**23.** Show that the following two equations represent the same set of angles:

$$\theta - \frac{\pi}{6} = 2n\pi \pm \frac{\pi}{3} \text{ and } \theta + \frac{\pi}{3} = n\pi + (-1)^n \frac{\pi}{6}$$



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**24.** (i) If  $\sin\left(\frac{\pi}{2}\cos\theta\right) = \cos\left(\frac{\pi}{2}\sin\theta\right)$ , show that,  
 $\pm\cos\left(\theta + \frac{\pi}{4}\right) = \frac{4n+1}{\sqrt{2}}$

where  $n = \text{any integer}$ .

(ii) If  $\tan(\pi \cos\theta) = \cot(\pi \sin\theta)$ , prove that,

$$\cos\left(\theta - \frac{\pi}{4}\right) = \frac{2n+1}{2\sqrt{2}}, n = 0, -1, 1, -2, 2, \dots$$



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**25.** If  $\operatorname{cosec}A = \operatorname{cosec}B$  and  $\sec A = \sec B$ , then prove that, either  $A=B$  or they differ by multiple of four right angles.



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**26.** If  $16 \tan^8 \phi = \cos 2\theta + 3 \cos \theta$  and  $3 \cos^2 \phi = 2$ , then find the general values of  $\theta$ .



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**27.** Solve:  $2(\sin x - \cos 2x) - \sin 2x(1 + 2 \sin x) + 2 \cos x = 0$



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**28.** Prove that the system of equations  $x - y = \frac{2\pi}{3}$  and  $\cos x + \cos y = \frac{3}{2}$  does not have any real solution.



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**29.** Solve:  $\tan x + \tan y = 1$ ,  $x + y = \frac{\pi}{4}$



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1. The values of  $x$  of the equation  $4\sin^4 x + \cos^4 x = 1$  are

A.  $n\pi$

B.  $n\pi \pm \sin^{-1} \sqrt{\frac{2}{5}}$

C.  $\frac{2n\pi}{3}$

D.  $2n\pi \pm \frac{\pi}{4}$

**Answer: A::B**



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2. If  $\sin^3 \theta + \sin \theta \cos \theta + \cos^3 \theta = 1$ , then the value of  $\theta$  will be-

A.  $2n\pi$

B.  $2n\pi + \frac{\pi}{2}$

C.  $2n\pi - \frac{\pi}{2}$

D.  $n\pi$

**Answer: A::B**



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3. If  $\tan^2 \theta + \cos 2\theta = 1$ , then the general solution of  $\theta$  is-

A.  $n\pi - \frac{\pi}{4}$

B.  $2n\pi + \frac{\pi}{2}$

C.  $n\pi + \frac{\pi}{4}$

D.  $2n\pi - \frac{\pi}{4}$

**Answer: A::C**



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4. If  $x + y = \frac{\pi}{4}$  and  $\tan x + \tan y = 1$ , then

A. It is always  $\sin x = 0$

B. When  $x = n\pi + \frac{\pi}{4}$ , then  $y = -n\pi$

C. When  $x = n\pi$ , then  $y = -n\pi + \frac{\pi}{4}$

D. When  $x = n\pi$  then  $y = n\pi - \frac{\pi}{4}$

**Answer:** B::C



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5. The solution of this equations  $16^{\cos^2 x} + 16^{\sin^2 x} = 10 \left(0 < x < \frac{\pi}{2}\right)$  is-

A.  $\frac{\pi}{6}$

B.  $\frac{\pi}{3}$

C.  $\frac{2\pi}{3}$

D.  $\frac{5\pi}{6}$

**Answer:** A::B::C::D



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## Integer Answer Type

1. Number of solutions of the equation  $3\sin^2 x - 7\sin x + 2 = 0$  lying in the interval  $[0, 5\pi]$  is/are-



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2. Number of solutions of  $x$  of the equation  $\sin 5x - \sin 3x - \sin x = 0$  lying in the interval  $[0, 2\pi]$  is/are-



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3. Number of solutions of  $x$  ( $0 < x < \pi$ ) of the equations  $\tan x + \tan 2x + \sqrt{3}\tan x \tan 2x = \sqrt{3}$  is/are-



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4. How many real solutions are there of the equation  $2^{\sin x} - 2^{-2 \sin x} - 4 = 0$ ?



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5. Write the number of points of intersection of the curves  $2y=1$  and  $y=\cos x$  where  $0 \leq x \leq 2\pi$



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### Comprehension Type

1. Given,  $x \cos^3 y + 3x \cos y \sin^2 y = 14$  and  $x \sin^3 y + 3x \cos^2 y \sin y = 13$ .

The values of x -

A.  $\pm 5\sqrt{5}$

B.  $\pm \sqrt{5}$

C.  $\pm \frac{1}{\sqrt{3}}$

D.  $\pm \frac{2}{\sqrt{3}}$

**Answer: a**



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2. Given,  $x \cos^3 y + 3x \cos y \sin^2 xy = 14$  and  
 $x \sin^3 y + 3x \cos^2 y \sin y = 13.$

Number of values of  $y$  in the interval  $[0, 6\pi]$  are-

A. 5

B. 3

C. 4

D. 6

**Answer: d**



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3. Given,  $x \cos^3 y + 3x \cos y \sin^2 y = 14$  and  
 $x \sin^3 y + 3x \cos^2 y \sin y = 13.$

Value of  $\sin^2 y + 2 \cos^2 y$  is-

A.  $\frac{4}{5}$

B.  $\frac{9}{5}$

C. 2

D. 1

**Answer: b**



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4. Given  $r \sin \theta = \sqrt{3}$ ,  $r + 4 \sin \theta = 2(\sqrt{3} + 1)$  where  $0 \leq \theta \leq 2\pi$

How many solutions can be obtained from above two equations-

A. 3

B. 4

C. 5

D. 6

**Answer: b**



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5. Given  $r \sin \theta = \sqrt{3}$ ,  $r + 4 \sin \theta = 2(\sqrt{3} + 1)$  where  $0 \leq \theta \leq 2\pi$

Value of  $\theta$  will be-

A.  $\frac{\pi}{6} \cup \frac{5\pi}{6}$

B.  $\frac{\pi}{4} \cup \frac{2\pi}{6}$

C.  $\frac{\pi}{4} \cup \frac{2\pi}{3}$

D.  $\frac{\pi}{2} \cup \frac{3\pi}{2}$

**Answer: a**



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6. Given  $r \sin \theta = \sqrt{3}$ ,  $r + 4 \sin \theta = 2(\sqrt{3} + 1)$  where  $0 \leq \theta \leq 2\pi$

Value of r will be-

A.  $2\sqrt{3}, 2\sqrt{2}$

B.  $2\sqrt{3}, 3$

C.  $2\sqrt{3}, 2$

D.  $3\sqrt{3}, 2$

Answer: c



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Assertion Reason Type

1. Statement-I: General solution of the equation  $\frac{\tan 4x - \tan 2x}{1 + \tan 4x \tan 2x} = 1$  is  
 $x = \frac{n\pi}{2} + \frac{\pi}{8}, n \in \mathbb{Z}$

Statement-II:  $\tan \alpha = 1$ , therefore general solution is  $\alpha = n\pi + \frac{\pi}{4}, n \in \mathbb{Z}$

- A. Statement-I is true, statement-II is true and Statement-II is a correct explanation for Statement-I.
- B. Statement-I is true, Statement-II is true but staement-II is not a correct explanation of statement-I
- C. Statement-I is true, Statement-II is false.
- D. Statement-I is False, Statement-II is true.

**Answer: d**



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2. Statement-I:  $\sqrt{1 - \sin x} = \sin x$  this equation has a general solution when  $x \in [0, \frac{\pi}{4}]$

Statement-II:  $\cos x > \sin x$  when  $x \in [0, \frac{\pi}{4}]$

- A. Statement-I is true, statement-II is true and Statement-II is a correct explanation for Statement-I.

B. Statement-I is true, Statement-II is true but statement-II is not a

correct explanation of statement-I

C. Statement-I is true, Statement-II is false.

D. Statement-I is False, Statement-II is true.

**Answer: a**



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