



# MATHS

**BOOKS - VGS BRILLIANT MATHS**

**(TELUGU ENGLISH)**

**TRIGONOMETRY (MULTIPLE CHOICE  
QUESTION)**

**Trigonometry Multiple Choice Question**

1. Solve:  $\sin^2 \theta - \cos \theta = \frac{1}{4}$  in the interval  
 $(0^\circ \leq \theta \leq 2\pi^c)$

A.  $\left\{ \frac{\pi}{3}, \frac{5\pi}{3} \right\}$

B.  $\left\{ \pi, \frac{\pi}{2} \right\}$

C.  $\left\{ \frac{\pi}{3}, \frac{\pi}{4} \right\}$

D. None

**Answer: A**



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2. Find the extreme values of  $7\cos x - 24\sin x + 5$  over  $\mathbb{R}$ .

A.  $(-20, 10)$

B.  $(-10, 20)$

C.  $(-20, 30)$

D. None

**Answer: C**



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3. IF  $\frac{\cos \alpha}{a} = \frac{\sin \alpha}{b}$  then  $a \cos 2\alpha + b \sin 2\alpha$   
=.....

A.  $a$

B.  $b$

C.  $a^2$

D.  $-a$

**Answer: A**



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4. IF  $\cos \theta > 0$ ,  $\tan \theta + \sin \theta = m$  and  $\tan \theta - \sin \theta = n$  then  $m^2 - n^2 = \dots$

A. 4

B.  $4mn$

C.  $4\sqrt{mn}$

D.  $\sqrt{mn}$

**Answer: C**



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5.  $\frac{1}{\sin 10^\circ} - \frac{\sqrt{3}}{\cos 10^\circ} =$

A. 4

B.  $\frac{1}{4}$

C.  $\sqrt{3}$

D. None

**Answer: A**



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6.  $\cos 100^\circ \cdot \cos 40^\circ + \sin 100^\circ \cdot \sin 40^\circ = \dots\dots$

A. 2

B.  $\frac{1}{2}$

C. 1

D. -1

**Answer: B**



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7. IF  $\tan \theta + \cot \theta = x$ ,  $\sec \theta - \cos \theta = y$  then eliminate ' $\theta$ '.

A.  $x^2y - xy^2$

B.  $(x^2y)^{2/3} - (xy^2)^{2/3} = 1$

C.  $x^2y^2 + yx^2 = 1$

D.  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

**Answer: B**



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8. The angles of a Quadrilateral are in A.P. Greatest angle is double the least . Find the angles in circular measure.

A.  $\frac{\pi^c}{3}$

B.  $\frac{\pi^c}{4}$

C.  $\pi^c$

D.  $2\pi^c$

**Answer: A**



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9. IF  $\sin(A-B)=\frac{3}{5}$  and  $\sin(A+B)=\frac{4}{5}$  then find  $\sin 2A=.....$

A. 2

B. -1

C. 1

D. 0

**Answer: C**



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10. IF  $5\sin x + 12\cos x = 7$  then find  $5\cos x - 12\sin x = \dots\dots$

A.  $\sqrt{12}$

B.  $\sqrt{120}$

C.  $\sqrt{150}$

D. 0

**Answer: D**



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11. If  $\sin \alpha + \operatorname{cosec} \alpha = 2$ , find value of  $\sin^n \alpha + \operatorname{cosec}^n \alpha, n \in \mathbb{Z}$ .

A. 2

B. -2

C. 0

D. None

**Answer: A**



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12. Find the condition that

$$\sec^2 \theta = \frac{4xy}{(x + y)^2} \text{ is true.}$$

A.  $x=0$

B.  $y=0$

C.  $x=y$

D. None

**Answer: C**



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13. Solve:  $\tan^2 \theta + \sec 2\theta = 1$ ,  $0^\circ \leq \theta \leq 90^\circ$

A.  $\theta = 60^\circ$

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

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

D. None

**Answer: A**



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14. In any  $\Delta^{le}$  ABC then

$$\cot \frac{A}{2} + \cot \frac{B}{2} + \cot \frac{C}{2} = \dots\dots\dots$$

A.  $\sin \frac{A}{2} \sin \frac{B}{2} \sin \frac{C}{2}$

B.  $\cot \frac{A}{2} \cdot \cot \frac{B}{2} \cdot \cot \frac{C}{2}$

C.  $\cos A \cdot \cos B \cdot \cos C$

D.  $\sin \frac{A}{2} \cdot \cos \frac{B}{2} \sin \frac{C}{2}$

**Answer: B**



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15. Given  $\alpha + \beta + \gamma = \pi$  then

$\sin^2 \alpha + \sin^2 \beta - \sin^2 \gamma$  is equal to.....

A.  $2 \sin \alpha \cdot \sin \beta \cdot \cos \gamma$

B.  $4 \sin \alpha \sin \beta \cdot \sin \gamma$

C.  $2 \cos \alpha \cdot \sin \gamma \cdot \cos \beta$

D.  $\cos^2 \alpha + \cos^2 \beta + \cos^2 \gamma$

**Answer: A**



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16. IF  $\alpha + \beta = \frac{\pi}{2}$  and  $\gamma + \beta = \alpha$  then find  $\tan \alpha$ .

A.  $2 \tan \beta$

B.  $2 \tan \gamma + \tan \beta$

C.  $2 \tan \alpha$

D. None

**Answer: B**



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17. Find the value of the expression

$$\sqrt{3} \csc 20^\circ - \sec 20^\circ = \dots\dots$$

A.  $\frac{1}{4}$

B. 4

C. 3

D. 0

**Answer: B**



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18. IF  $x^2 + y^2 = 1$  and

$P = (3x - 4x^3)^2 + (3y - 4y^3)^2$  then find 'P'.

A. -1

B. 0

C. 1

D. None

**Answer: C**



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19. IF  $\tan^2 \theta = 2 \tan^2 \phi + 1$  then find the value of  $\cos 2\theta + \sin^2 \phi$ .

A. 1

B. 2

C. 3

D. 0

**Answer: D**



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20. IF  $y = \frac{\tan\left(\frac{\pi}{4} + \theta\right) + \tan\left(\frac{\pi}{4} - \theta\right)}{\tan\left(\frac{\pi}{4} + \theta\right) - \tan\left(\frac{\pi}{4} - \theta\right)}$  then

find  $y$ .

A.  $\cos ec 2\theta$

B.  $\sin 2\theta$

C.  $\cos \theta$

D. 0

**Answer: A**



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21. From a ship mast-head 150m.high, the angle of depression of a boat is observed to be  $45^\circ$ . It's distance from the ship is.....

A. 150 m

B. 100 m

C. 95 m

D. 0

**Answer: A**



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22. From a point 30 mts from the foot of a tower, the angle of elevation of the top is  $30^\circ$ .

The height of the tower is.....

A. 10m

B.  $10\sqrt{3}$ m

C. 15m

D. 19m

**Answer: B**



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**23.** An electrician wants to repair an electric connection on a pole of height 9 m. He needs to reach 2 m below the top of the pole to do repairing work. The distance between foot of the ladder and foot of the pole when the climbs it at an angle  $60^\circ$  with the ground is.....

A. 7m

B.  $\frac{7}{\sqrt{3}}$  m

C. 14 m



D.  $\frac{14}{\sqrt{3}}$  m

**Answer: B**



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**24.** A T.V. tower stands vertically on the side of a road. From a point on the other side directly opposite to the tower the angle of elevation of the top of tower is  $60^\circ$ . From another point 10 m away from the point, on the line joining the point of the foot of the tower, the angle of

elevation of the top of the tower is  $30^\circ$ . The width of the road is.....

A. 5m

B.  $5\sqrt{3}$ m

C. 10 m

D.  $10\sqrt{3}$ m

**Answer: A**



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25. From the top of a building, the angle of elevation of the top of a cell tower is  $60^\circ$  and the angle of depression to its foot is  $45^\circ$ . If distance of the building from the tower is 7m, then find the height of the tower.

A. 7m

B.  $7\sqrt{3}$ m

C.  $7(\sqrt{3} + 1)$ m

D. None

**Answer: D**



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