MATHS

BOOKS - MCGROW HILL EDUCATION MATHS (HINGLISH)

TRIGONOMETRY

Illustrative Example

1. If $\cos\theta = \frac{2t}{1+t^2}$, find the value of $\tan\theta$.

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2. Given , $\cos\theta = \frac{21}{29}$, what is the value of $\frac{\sec\theta}{\tan\theta - \sin\theta}$

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3. If 5 tan θ =4, find the value of $\frac{5\sin\theta - 3\cos\theta}{5\sin\theta + 2\cos\theta}$

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4. If $\tan\theta = \frac{p}{q}$ then the value of $\frac{p\sin\theta - q\cos\theta}{p\sin\theta + q\cos\theta}$ is

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5. What is the value of (tan A + cot A) sin A x cos A ?

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6. The value of $\sin^2 A\cos^2 B + \cos^2 A\cos^2 B + \sin^2 A\sin^2 B + \cos^2 A\sin^2 B$ is .....

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7. If $x = a\cos\theta - b\sin\theta$, and $y = a\sin\theta + b\cos\theta$, what is the value of $\frac{x^2 + y^2}{a^2 + b^2}$?

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8. The value of $\frac{\sin\theta - 2\sin^3\theta}{2\cos^3\theta - \cos\theta}$ is

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9. What is the value of $\frac{\tan x}{\frac{\sin^3 x}{\cos x} + \sin x\cos x}$

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10. The value of $\frac{\sin A + \sin B}{\cos A + \cos B} + \frac{\cos A - \cos B}{\sin A - \sin B}$ is.....

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11. If $\cos\theta + \sin\theta = \sqrt{2}\cos\theta$, then the value of $\frac{\cos\theta - \sin\theta}{\sin\theta}$ is

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12. What is the value of $\sin^6\theta + \cos^6\theta + 3\sin^2\theta\cos^2\theta$?

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13. The value of $2\left(\sin^6\theta + \cos^6\theta\right) - 3\left(\sin^4\theta + \cos^4\theta\right)$ is .....

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14. If $\tan\theta = \frac{4}{3}$, what is the value of $\sqrt{\frac{1-\sin\theta}{1+\sin\theta}}$

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15. The value of $\sin 30^\circ \cos^2 60^\circ + \cos 30^\circ \sin^2 60^\circ$ is equal to

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16. The value of $\frac{4}{\tan^2 60^\circ} + \frac{1}{\cos^2 30^\circ} - \sin^2 90^\circ$ is equal to .....

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17. The is the value of $\frac{\sin^2 30^\circ}{\cos^2 30^\circ} + \frac{\cos^2 30^\circ}{\sin^2 30^\circ}$?

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18. What is the value of $4\left(\sin^4 30^\circ + \cos^4 60^\circ\right) - 3\left(\cos^2 45^\circ - \sin^2 90^\circ\right)$?

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19. What is the value of $\left(\frac{1}{\sin 45^\circ} - \sin 45^\circ\right)\left(\frac{1}{\cos 45^\circ} - \cos 45^\circ\right)\left(\tan 45^\circ + \frac{1}{\tan 45^\circ}\right)$?

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20. What is the value of $(\tan^4 60^\circ - \sin^4 90^\circ) - 2(\tan^2 45^\circ + 3\cos^2 0^\circ)$

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21. What is the value of $\left(\frac{\cos 21^\circ}{\sin 69^\circ}\right) - \left(\frac{\sin 40^\circ}{\cos 50^\circ}\right)$?

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22. Find the value of $\cos^2 17^\circ - \sin^2 73^\circ$

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23. What is the value of $\sin^2 25^\circ + \sin^2 65^\circ$?

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24. Find x if $x \sin^2 60^\circ - \frac{1}{2}\sec 60^\circ \tan^2 30^\circ + \frac{4}{3}\sin^2 45^\circ \tan^2 60^\circ = 0$

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25. What is the value of $\sec(90^\circ - A) - \cot A \cos(90^\circ - A)\tan(90^\circ - A)$?

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26. If x $\sin(90^\circ - A)\cos(90^\circ - A) = \cos(90^\circ - A)$, find x.

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27. Find the value of the x which will satisfy sec A cosec $(90^\circ - A) - x \cot(90^\circ - A) = 1$

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28. If $0^\circ < \theta < 90^\circ$, find the value of θ satisfying 2 sin θ=cosec θ

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29. Find the smallest positive value of θ satisfying $\tan\theta = 2\sin\theta$.

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30. If $0^\circ \leq \theta \leq 90^\circ$, find the value of θ satisfying 3 tan $\theta + \cot\theta = 5$ cosec θ

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31. If $0^\circ < \theta < 90^\circ$, find θ when 2 cos $\theta + 2\sqrt{2} = 3\sec\theta$

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32. If $0^\circ < A < 90^\circ$ and sin A=$\frac{4}{5}$, find the value of tan A + sec A ?

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33. In a triangle ABC, right angled at C, find the value of tan A + tan B in terms of the sides a,b,c.

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34. Find the smallest positive value of θ satisfying the equation sec 6 θ = cosec 3 θ

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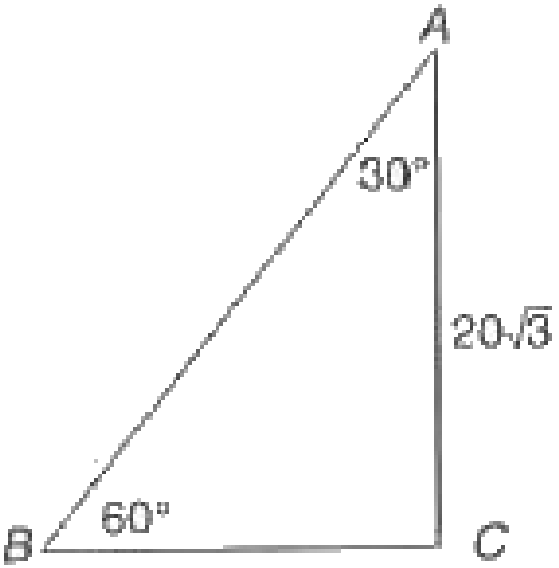
35. Find side c of the triangle ABC , given that $A = 30^\circ, B = 60^\circ$ and $b = 20\sqrt{3}$.



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36. Express the relation of a and b if $\sin\theta = \frac{2ab}{a^2+b^2}$, where $a > 0, b > 0$.

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37. For what real value of 'a', the equation $2\sin\theta = a + \frac{1}{a}$ is possible ?

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38. Find the quadrant in which θ lies if

(i)cos θ is negative but sin θ is positive

(ii)sin θ is negative but tan θ is positive

(iii) cos θ is negative and sin θ is negative

(iv) cos θ and cot θ are both negative

(v) sec θ is positive but cosec θ is negative

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39. If A lies between 180° and 270° and 12 tan A =5 , find the value of 5 cot A-13 sin A +12 sec A .

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40. If sin θ + cos θ=1, the value of sin θ cos θ is

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41. If $\sin\theta = \frac{7}{25}$ and $90^\circ < \theta < 180^\circ$, find the value of $\sec\theta + \tan\theta$.

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42. If $\tan\theta + \sec\theta$=4 , the value of $\sin\theta\cos\theta$.

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43. What is the eliminant of $x = a\cos^3\theta, y = b\sin^3\theta$?

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44. Find the value of $a\cos\theta - b\sin\theta$ if $a\sin\theta + b\cos\theta = c$.

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45. What is the eliminant of θ if a $\sin\theta - b = 0$ and c $\tan\theta - d = 0$

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46. If $x = \gamma \sin\theta \cos\phi, y = \gamma \sin\theta \sin\phi, z = \gamma \cos\theta$, what is the eliminant of θ and ϕ ?

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47. Evaluate $\sin 1^\circ \sin 2^\circ \sin 3^\circ$ ....sin 179° sin 180°

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48. Find the vaue of $\cos 1^\circ \cos 2^\circ \cos 3^\circ$ ....cos $88^\circ \cos 89^\circ \cos 90^\circ$

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49. Find the value of $\cos 1^\circ \cos 2^\circ \cos 3^\circ$ .....cos 89° .....cos $179^\circ \cos 180^\circ$

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50. Find the value of $\tan 1^\circ \tan 2^\circ \tan 3^\circ$ ....$\tan 45^\circ$ .....$\tan 88^\circ \tan 89^\circ$

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51. If $\tan\theta + \sin\theta = a$ and $\tan\theta - \sin\theta = b$, what is the value $\left(a^2 - b^2\right) \div \sqrt{ab}$

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52. If $\cot(x+y) = \frac{1}{\sqrt{3}}$ and $\cot(x-y) = \sqrt{3}$, find the smallest positive value of x and y .

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53. If $\gamma \cos\theta = 1$ and $\gamma \sin\theta = \sqrt{3}$, find the positive value of γ

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54. What is the value of $\frac{\tan(90^\circ - \theta)\sec(180^\circ - \theta)\sin(-\theta)}{\sin(180^\circ + \theta)\cot(360^\circ - \theta)\operatorname{cosec}(90^\circ - \theta)}$?

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55. What is the greatest value of θ lying between 0° and 720° whose tangent is $-\frac{1}{\sqrt{3}}$?

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56. What is the value of $\cos 1485^\circ \times \operatorname{cosec} 855^\circ$?

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57. A,B,C,D are the angles of a cyclic quardrilateral ABCD , what is the value of cos A+cos B + cos C + cos D ?

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58. What is the value of $\cos 20^\circ + \cos 22^\circ + \cos 158^\circ + \cos 200^\circ + \cos 300^\circ$?

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59. If $\operatorname{cosec}(90^\circ + A) + x \cot A \cot(90^\circ + A) = \sin(90^\circ + A)$, find x.

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60. If A,B,C,D be the angles of a quadrilateral , what is the value of $\frac{\sin(A+B)}{\sin(C+D)} + \frac{\cos(C+D)}{\cos(A+B)}$

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61. Find the value of $\frac{\sin\theta}{\cos(90^\circ + \theta)} + \frac{\sin\theta}{\sin(180^\circ + \theta)} + \frac{\tan(90^\circ + \theta)}{\cot\theta}$

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62. Which one of the following is the value of $\tan 75^\circ$.

A. $\frac{2\sqrt{3}}{\sqrt{3}-1}$

B. $\frac{\sqrt{3}-1}{\sqrt{3}+1}$

C. $\frac{\sqrt{3}+1}{\sqrt{3}-1}$

D. $\frac{\sqrt{3}}{\sqrt{3}+1}$

Answer: C

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63. Which one of the following is the value of $\cos 170^\circ \cos 10^\circ - \sin 170^\circ \sin 10^\circ$

A. -2

B. -1

C. 0

D. 1

Answer: B

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64. $0 < A < 90^\circ : 0 < B < 90^\circ, \sin A = \frac{12}{13}$ and cos B=$\frac{4}{5}$. Find the vaue of sin (A+B).

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65. If A is in the 3rd quardrant and B is the the fourth quadrant and cos A =$-\frac{15}{17}$, cos B =$\frac{4}{5}$, find the value of cos (A+B).

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66. What is the value of cos $(30^\circ + x)\cos(30^\circ - x) - \sin(30^\circ + x)\sin(30^\circ - x)$

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67. Find the value of $\frac{\tan 42^\circ + \tan 18^\circ}{1 - \tan 42^\circ \tan 18^\circ} + \tan 300^\circ$

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68. Find the value of $\sin 15^\circ + \cos 15^\circ$

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69. If $\frac{\cos 12^\circ + \sin 12^\circ}{\cos 12^\circ - \sin 12^\circ} = \tan x^\circ$, what is the value of x.

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70. $\tan 20^\circ + \tan 25^\circ + \tan 20^\circ \tan 25^\circ =$

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71. The value of $\frac{1}{\sin 10^\circ} - \frac{\sqrt{3}}{\cos 10^\circ}$ is equal to

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72. Find the value of $\frac{\cos(45^\circ - A)}{\sin(45^\circ + A)}$

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73. What is the value of $\frac{\sin(30^\circ - A)}{\cos A - \sqrt{3}\sin A}$

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74. If $\theta = \frac{11\pi}{4}$, find the numerical value of $\sin^2\theta - \cos^2\theta + 2\tan\theta - \sec^2\theta$

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75. If A lies between 180° and 270° and 3 tan A=4 , find the value of 2 cot A - cos A + sin A

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76. What is the value of $\frac{\sin(x-y)}{\cos x \cos y} + \frac{\sin(y-z)}{\cos y \cos z} + \frac{\sin(z-x)}{\cos z \cos x}$?

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77. If $A + B = \frac{\pi}{4}$, find the numerical value of (1+tan A)(1+tan B) is equal to

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78. If $\cos\theta + \sqrt{3}\sin\theta = 2$, then the value of θ is equal to

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79. The least value of $\cos\theta + \sin\theta$ is

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80. For what value of θ, $\sin\theta + \cos\theta$ is maximum

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81. Simplify $\sqrt{2+\sqrt{2+2\cos(\pi+60^\circ)}}$

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82. If $\sec\theta = x + \frac{1}{4x}$, the value of $\sec\theta + \tan\theta$ is equal to

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83. What is the value of $\frac{(\sec\theta+1)^2+(1+\sec\theta)^2}{1+\sec^2\theta}$?

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84. If $\cos\theta = \frac{1}{2}\left(x + \frac{1}{x}\right)$, what is the value of $\cos 2\theta$?

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85. If $0 < A < \pi/2$ and $\cos A = 4/5$, find the value of sin 2A.

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86. If $\cos y^\circ = \sin(y^\circ + 20^\circ)$, find the least positive value of y.

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87. The value of $\cos^2 5^\circ + \cos^2 10^\circ + \cos^2 15^\circ + \cos^2 20^\circ + \cos^2 70^\circ + \cos^2 75^\circ + \cos^2 80^\circ$ is equal to

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88. If $A = 29^\circ$, find the value of $\sin^4 A + \cos^4 A + 2\sin^2 A \cos^2 A$

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89. If cos x= tan $40^\circ \tan 50^\circ$, what is the value of x ?

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90. Minimum value of $\sec^2 \theta + \cos^2 \theta$ is

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91. If a cos θ + b sin θ= c, then what is the value of a sin θ- b cos θ ?

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92. If sinx+$\sin^2 x = 1$, then which one of the following is true

A. $\cos x + \cos^2 x = 1$

B. $\cos x - \cos^2 x = 1$

C. $\cos^2 x + \cos^4 x = 1$

D. $\cos^4 x + \cos^3 x = 1$

Answer: C

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93. The value of $(\sin x \cos y + \cos x \sin y)^2 + (\cos x \cos y - \sin x \sin y)^2$ is equal to

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94. A vertical tower stands on a horizontal plane, and from a point on the ground at a distance of 30 metres from the foot of the tower , the angle of elevation is 60°. The height of the tower is

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95. A person, standing on the bank of a river, observes that the angle subtended by a tree on the opposite bank is 60^0. When he retreates 20m from the bank, he finds the angle to be 30^0. Find the height of the tree and the breadth of the river.

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Multiple Choice Questions

1. The value of $\cos 10^\circ \sin 20^\circ$ is _____.

A. positive

B. negative

C. 0

D. 1

Answer: A

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2. The value of sec θ can

A. never be greater than 1

B. never be less than 1

C. never be equal to 1

D. never lie between -1 and 1

Answer: D

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3. The value of $\sin^6\theta + \cos^6\theta + 3\cos^2\theta\sin^2\theta$ is

A. 1

B. 2

C. 3

D. 6

Answer: A

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4. The value of $\cos 1^\circ \cos 2^\circ \cos 3^\circ$ .....$\cos 179^\circ$ is

A. $\frac{1}{\sqrt{2}}$

B. 0

C. 1

D. -1

Answer: B

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5. $\tan 1^\circ \tan 2^\circ \ldots \tan 89^\circ =$

A. 1

B. 0

C. ∞

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

Answer: A

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6. Which of the following is correct ? [Hint: 1 radian = 180°/π = 57°30' approx.]

A. $\sin 1^\circ > \sin 1$

B. $\sin 1^\circ < \sin 1$

C. $\sin 1^\circ = \sin 1$

D. $\sin 1^\circ = \frac{\pi}{180} . \sin 1$

Answer: B

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7. If $\tan\theta = -\frac{4}{3}$, then $\sin\theta$ is

A. $-\frac{4}{5}$ but not $\frac{4}{5}$

B. $-\frac{4}{5}$ or $\frac{4}{5}$

C. $\frac{4}{5}$ but not $-\frac{4}{5}$

D. None of these

Answer: B

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8. If $0^\circ \leq x \leq 90^\circ$ and $1 + \tan^2 x - 2\tan x = 0$, then the value of x is

A. 30°

B. 45°

C. 60°

D. 90°

Answer: B

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9. If x is acute , then $\sqrt{\frac{1+\sin x}{1-\sin x}}$ is

A. sec x + tan x

B. cosec x + cot x

C. sec x + cosec x

D. tan x + cot x

Answer: A

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10. The value of $\sin^3\alpha(1+\cot\alpha)+\cos^3\alpha(1+\tan\alpha)$ is equal to

A. $\sin\alpha-\cos\alpha$

B. $\sin\alpha+\cos\alpha$

C. $\sin\alpha\cos\alpha$

D. cosec α sec α

Answer: B

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11. If $x=r\cos\alpha\cos\beta, y=r\cos\alpha\sin\beta, z=r\sin\alpha$ then $x^2+y^2+z^2$=

A. r^2

B. r^4

C. 1

D. None of these

Answer: A

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12. If $\cos\alpha + \cos\beta = 0 = \sin\alpha + \sin\beta$, then $\cos 2\alpha + \cos 2\beta$ is equal to

A. $-2\sin(\alpha+\beta)$

B. $-2\cos(\alpha+\beta)$

C. $2\sin(\alpha+\beta)$

D. $2\cos(\alpha+\beta)$

Answer: B

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13. $\tan\frac{2\pi}{5} - \tan\frac{\pi}{15} - \sqrt{3}\tan\frac{2\pi}{5}\tan\frac{\pi}{15}$ is equal to

A. $-\sqrt{3}$

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

C. 1

D. $\sqrt{3}$

Answer: D

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14. If $A+B+C=\pi$ and $m\angle C$ is obtuse then $\tan A.\tan B$ is

A. tan A tan B $\geq$ 1

B. tan A tan B $<$ 1

C. tan A tan B=1

D. None of these

Answer: B

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15. If tan A=$\frac{1}{2}$ and tan B=$\frac{1}{3}$, then the value of A+B is

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

B. π

C. zero

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

Answer: D

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16. The value of $\frac{\sin^3\theta+\cos^3\theta}{\sin\theta+\cos\theta}+\frac{\left(\cos^3\theta-\sin^3\theta\right)}{\cos\theta-\sin\theta}$ is

A. 2

B. 1

C. 0

D. None of these

Answer: A

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17. The extremum values of cos x are :

A. $-\frac{\sqrt{3}}{2}$ and $\frac{1}{\sqrt{2}}$

B. -1 and 0

C. -1 and 1

D. 0 and 1

Answer: C

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18. The value of $\sin^2\alpha\cos^2\beta+\cos^2\alpha\sin^2\beta+\sin^2\alpha\sin^2\beta+\cos^2\alpha\cos^2\beta$ is

A. 1

B. 0

C. -1

D. 3

Answer: A

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19. If $A = \cos^4\theta + \sin^2\theta$, then for all values of θ:

A. $1 \leq A \leq 2$

B. $\frac{13}{16} \leq A \leq 1$

C. $\frac{3}{4} \leq A \leq \frac{13}{16}$

D. $\frac{3}{4} \leq A \leq 1$

Answer: D

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20. If $\tan\theta = \frac{a}{b}$, then the value of b $\cos 2\theta + a \sin 2\theta$ is

A. a

B. b

C. $\frac{b}{a}$

D. None of these

Answer: B

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21. If A lies in the third quardrant and 3 tan A -4 =0 , then 5 sin 2A+3 sin A + 4 cos A is equal to

A. 0

B. $\frac{-24}{5}$

C. $\frac{24}{5}$

D. $\frac{48}{5}$

Answer: A

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22. If sin A+sin B + sin C =3, then the value of cos A + cos B + cos C is

A. 3

B. 2

C. 1

D. 0

Answer: D

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23. If $x = y\cos\left(\frac{2\pi}{3}\right) = z\cos\left(\frac{4\pi}{3}\right)$,then what is xy + yz + zx equal to ?

A. -1

B. 0

C. 1

D. 2

Answer: B

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24. $\left(1+\cos.\frac{\pi}{8}\right)\left(1+\cos.\frac{3\pi}{8}\right)\left(1+\cos.\frac{5\pi}{8}\right)\left(1+\cos.\frac{7\pi}{8}\right)$ is equal to

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

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

C. $\frac{1}{8}$

D. $\frac{\sqrt{2}+1}{2\sqrt{2}}$

Answer: C

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25. If $\frac{\sin x}{1+\cos x}+\frac{\sin x}{1-\cos x}=4$ and $0^\circ \leq x \leq 90^\circ$, then the value of x is

A. 10°

B. 15°

C. 30°

D. 45°

Answer: C

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26. The equation $a\sin x+b\cos x=c, \quad \text{where} |c|>\sqrt{a^2+b^2}$ has

A. a unique solution

B. infinite solutions

C. no solution

D. None of these

Answer: C

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27. The value of 16 sin $144^\circ \sin 108^\circ \sin 72^\circ \sin 36^\circ$ is equal to

A. 1

B. 3

C. 5

D. $\frac{1}{16}$

Answer: C

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28. $\cos 2x + 2\cos x$ is always :-

A. greater than $-\frac{3}{2}$

B. less than or equal to $\frac{3}{2}$

C. greater than or equal to $-\frac{3}{2}$

D. None of these

Answer: A

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29. If sin θ+ cosec θ =2, then $\sin^n \theta + \text{cosec}^n \theta$ is equal to

A. 2

B. 2n

C. 2^{n-1}

D. 2^{n-2}

Answer: A

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30. The value of $\left[\sqrt{3}\cot 20^\circ - 4\cos 20^\circ\right]$ is equal to-

A. 1

B. -1

C. 0

D. None of these

Answer: A

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31. The value of $\sqrt{3}\operatorname{cosec} 20^\circ - \sec 20^\circ$ is equal to

A. 2

B. 1

C. 4

D. -4

Answer: C

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

A. 1

B. 2

C. 1.5

D. None of these

Answer: A

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33. If $x = \sec^2\theta + \cos^2\theta, \theta \neq \theta$, then the value of x is

A. 0

B. ≤ 2

C. ≥ -2

D. $\neq 2$

Answer: D

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34. The equation $\sin^2 x = \frac{a^2 + b^2}{2ab}$, is possible if

A. a=b

B. a=-b

C. 2a=b

D. None of these

Answer: A

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35. If A+B=$\frac{\pi}{4}$, then (1+tan A) (1+tanB) is equal

A. 1

B. 2

C. $\sqrt{3}$

D. None of these

Answer: B

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36. If 3 sin θ+ 5 cos θ=5, then the value of (5 sin θ - 3 cos θ) is

A. 4

B. 3

C. 2

D. 1

Answer: B

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37. If (1+sinx)(1+siny)(1+sinz)=(1-sinx)(1-siny)(1-sinz)=k, then k has the value

A. $\pm$ cos x cos y cos z

B. $\pm$ sin x sin y sin z

C. $\pm$ 3 sin x sin y sin z

D. None of these

Answer: B

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38. if $5\cot\theta = 4$, then the value of $\left(\frac{5\sin\theta - 3\cos\theta}{\sin\theta + 2\cos\theta}\right)$

A. $\frac{5}{14}$

B. $\frac{3}{4}$

C. 1

D. None of these

Answer: C

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39. If $\pi \leq \theta \leq \frac{3\pi}{2}$, then $\sqrt{\frac{1+\cos\theta}{1-\cos\theta}} + \sqrt{\frac{1-\cos\theta}{1+\cos\theta}}$ is equal to :

A. 2 cosec θ

B. $-2\text{cosec}\theta$

C. 2 sec θ

D. $-\sec\theta$

Answer: B

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40. If $7\sin^2\theta + 3\cos^2\theta = 4$, then find value of tan θ.

A. $\pm\frac{1}{\sqrt{2}}$

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

C. $\pm\frac{1}{2}$

D. $\pm\frac{1}{3}$

Answer: B

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41. If $\cos\theta + \sin\theta = \sqrt{2}\cos\theta \quad \text{then}\cos\theta - \sin\theta$ is equal to

A. $\sqrt{2}\cos\theta$

B. $\sqrt{2}\sin\theta$

C. $2\cos\theta$

D. $2\sin\theta$

Answer: B

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42. If $a\cos\theta - b\sin\theta = c,$ then find the value of $a\sin\theta + b\cos\theta.$

A. $\pm\sqrt{a^2|b^2|c^2}$

B. $\pm\sqrt{a^2 - b^2 + c^2}$

C. $\pm\sqrt{a^2 + b^2 + c^2}$

D. $\pm\sqrt{b^2 + c^2 + a^2}$

Answer: B

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43. If $\tan^2\theta = (1 - e^2)$, then $\sec\theta + \tan^3\theta \operatorname{cosec}\theta$ is equal to

A. $(2 + e^2)^{3/2}$

B. $(2 - e^2)^{3/2}$

C. $(1 - e^2)^{3/2}$

D. $(1 + e^2)^{3/2}$

Answer: B

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44. If $\tan\theta + \sin\theta = 1, \quad \text{then} \cos^2\theta = n \quad \text{then} m^2 - n^2$ is equal

A. 4mn

B. $4\sqrt{mn}$

C. 2mn

D. $2\sqrt{mn}$

Answer: B

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45. If

$(\sec A + \tan A)(\sec B + \tan B)(\sec C + \tan C) = (\sec A - \tan A)(\sec B -$

prove that the value of each side is +-1.

A. $\pm\sqrt{2}$

B. $\pm\sqrt{3}$

C. ± 2

D. ± 1

Answer: D

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46. If $a\cos^2\theta + 3a\cos\theta s\in^2\theta = mandas\in^3\theta + 3a\cos^2\theta s\in^\theta = n$,

then prove that: $(m+n)^{2/3} + (m-n)^{2/3} = 2a^{2/3}$

A. $a^{2/3}$

B. $a^{4/3}$

C. $2a^{2/3}$

D. $2a^{4/3}$

Answer: C

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47. When $\theta = \frac{11}{3}\pi$, then the value of $\cos\theta - \sin\theta$ is

A. $\frac{\sqrt{3}+1}{2}$

B. $\frac{\sqrt{3}-1}{2}$

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

D. None of these

Answer: A

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48. If A,B,C,D are the angles of a cyclic quadrilateral and cos A+cos B= K(cos C + cos D), then the value of K is

A. 1

B. -1

C. 2

D. -2

Answer: B

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49. The value of tan $15^\circ \tan 25^\circ \tan 45^\circ \tan 65^\circ \tan 75^\circ$ is

A. 3

B. $\sqrt{3}$

C. 2

D. 1

Answer: D

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50. If $\frac{\tan 26^\circ + \tan 19^\circ}{x(1 - \tan 26^\circ \tan 19^\circ)} = \cos 60^\circ$, then the value of x is

A. 1

B. 2

C. $\sqrt{2}$

D. $\sqrt{3}$

Answer: B

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