QB365 Question Bank Software Study Materials

Trigonometry 50 Important 1 Marks Questions With Answers (Book Back and Creative)

10th Standard

Maths

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

1) The value of $sin^2\theta + \frac{1}{1+tan^2\theta}$ is equal to

(a) $tan^2\theta$ **(b) 1** (c) $cot^2\theta$ (d) 0

2) tan θ cosec$^2\theta$ - tanθ is equal to

(a) secθ (b) $cot^2\theta$ (c) sinθ **(d)** $cot\theta$

3) If sin θ + cosθ = a and sec θ + cosec θ = b, then the value of b(a^2 - 1) is equal to

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

4) If 5x = secθ and $\frac{5}{x}$ = tanθ, then x^2 - $\frac{1}{x^2}$ is equal to

(a) 25 **(b)** $\frac{1}{25}$ (c) 5 (d) 1

5) If sin θ = cos θ, then 2 tan^2 θ + sin^2 θ -1 is equal to

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

6) If x = a tanθ and y = b secθ then

(a) $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$ (b) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ (c) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ (d) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 0$

7) (1 + tan θ + secθ) (1 + cotθ - cosecθ) is equal to

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

8) a cot θ + b cosecθ = p and b cot θ + a cosecθ = q then p^2- q^2 is equal to

(a) a^2 - b^2 **(b) b^2 - a^2** (c) a^2 + b^2 (d) b - a

9) If the ratio of the height of a tower and the length of its shadow is $\sqrt{3} : 1$, then the angle of elevation of the sun has measure

(a) 45° (b) 30° (c) 90° **(d) 60°**

10) The electric pole subtends an angle of 30° at a point on the same level as its foot. At a second point 'b' metres above the first, the depression of the foot of the pole is 60°. The height of the pole (in metres) is equal to

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

11) A tower is 60 m height. Its shadow is x metres shorter when the sun's altitude is 45° than when it has been 30°, then x is equal to

(a) 41.92 m **(b) 43.92 m** (c) 43 m (d) 45.6 m

12) The angle of depression of the top and bottom of 20 m tall building from the top of a multistoried building are 30° and 60° respectively. The height of the multistoried building and the distance between two buildings (in metres) is

(a) 20, $10\sqrt{3}$ (b) 30, $5\sqrt{3}$ (c) 20, 10 **(d) 30, $10\sqrt{3}$**

13) Two persons are standing 'x' metres apart from each other and the height of the first person is double that of the other. If from the middle point of the line joining their feet an observer finds the angular elevations of their tops to be complementary, then the height of the shorter person (in metres) is

(a) $\sqrt{2}$ x **(b)** $\frac{x}{2\sqrt{2}}$ (c) $\frac{x}{\sqrt{2}}$ (d) 2x

14) The angle of elevation of a cloud from a point h metres above a lake is β. The angle of depression of its reflection in the lake is 45°. The height of location of the cloud from the lake is

(a) $\frac{h(1+tan\beta)}{1-tan\beta}$ (b) $\frac{h(1-tan\beta)}{1+tan\beta}$ (c) h tan(45°-β) (d) none of these

15) If $(\sin \alpha + \text{cosec } \alpha)^2 + (\cos \alpha + \sec \alpha)^2 = k + \tan^2\alpha + \cot^2\alpha$, then the value of k is equal to

(a) 9 **(b) 7** (c) 5 (d) 3

16) If sin A = $\frac{1}{2}$, then the value of cot A is _____

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

17) The value of the expression [cosec (75° + θ) - sec (15° - θ) - tan (55° + θ) + cot(35° - θ] is _____

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

18) If cos9∝ = sin∝ and 9∝ < 90°, then the value of tan t∝ is

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

19) If ΔABC is right angled at C, then the value of cos (A + B) is _____

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

20) If $\sin A + \sin^2 A = 1$, then the value of the expression $(\cos^2 A + \cos^4 A)$ is _____

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

21) Given that sin ∝ = $\frac{1}{2}$ and cos β = $\frac{1}{2}$, then the value of (∝ + β) is _____

(a) 0° (b) 30° (c) 60° (d) 90°

22) The value of the expression $\left[\frac{sin^2 22^o + sin^2 68^o}{cos^2 22^0 + cos^2 68^0} + sin^2 63^{o+} cos 63^0 sin 27^0\right]$ is _____

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

23) If 4 tan θ = 3, then $\left(\frac{4sin\theta - cos\theta}{4sin\theta + cos\theta}\right)$ is equal to _____

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

24) If sin θ - cos θ = 0, then the value of $(\sin^4 \theta + \cos^4 \theta)$ is _____

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

25) Sin(45°+ θ) - cos(45° - θ) is equal to _____

(a) 2cos θ (b) 0 (c) 2sin θ (d) 1

26) A pole 6 m high a shadow $2\sqrt{3}$ m long on the ground, then the sun's elevation is _____

(a) 60° (b) 45° (c) 30° (d) 90°

27) If A is an assets angle of Δ ABC, right angle at 3, then the value of sin A T cos A is _____

(a) =1 (b) > 1 (c) < 1 (d) =2

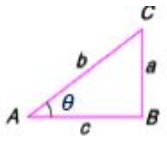
28) If cotθ = b/a then value of $\frac{cos\theta + sin\theta}{cos\theta - sin\theta}$ a

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

29) $9 \sec^2 A - 9\tan^2 A$ = _____

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

30) From the figure, the value of cosec θ + cot θ is _____



(a) $\frac{a+b}{c}$ (b) $\frac{c}{a+b}$ **(c)** $\frac{b+c}{a}$ (d) $\frac{b}{a+c}$

31) If $\cos\theta + \cos^2\theta = 3$ then $\tan^2\theta + \cot^2\theta$ is equal to _____

(a) 4 **(b) 7** (c) 6 (d) 9

32) $\frac{tan\theta}{sec\theta} + \frac{tan\theta}{sec\theta+1}$ is equal to

(a) 2tanθ (b) 2secθ **(c) 2cosecθ** (d) 2 tanθsecθ

33) If sin(α + β) = 1 then cos(α - β) can be reduced to _____

(a) sin α (b) cos β **(c) sin 2β** (d) cos 2β

34) If x = a sec θ and = b tan θ, then $b^2x^2 - a^2y^2$ is equal to _____

(a) ab (b) a^2-b^2 (c) a^2+b^2 **(d) a^2b^2**

35) The angle of elevation of the top of tree from a point at a distance of 250 m from its base is 60°. The height of tree is _____

(a) 250 m **(b)** $250\sqrt{3}$ (c) $\frac{250}{3}m$ (d) $200\sqrt{3}$

36) A ladder of length 14m just reaches the top of a wall. If the ladder makes an angle of 60° with the horizontal, then the height of the wall is _____

(a) $14\sqrt{3}$ (b) $28\sqrt{3}$ **(c)** $7\sqrt{3}$ (d) $35\sqrt{3}$

37) The top of two poles of height 18.5m and 7m are connected by a wire. If the wire makes an angle of measures 360° with horizontal, then the length of the wire is _____

(a) 23m (b) 18m (c) 28m (d) 25.5m

38) The blanks of river are parallel. A swimmer starts from a point on one of the banks and swims in a straight line to the bank at 45° and reaches the opposite bank at a point 20 m, from the point opposite to the straight point. The breadth of the river is equal to _____

(a) 12.12m **(b) 14.14m** (c) 1016.16m (d) 18.18m

39) If $\tan\theta = \frac{a}{b}$, then $\frac{a\sin\theta+b\cos\theta}{a\sin\theta-b\cos\theta}$ is _____

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

40) If A and B are complementary angles then _____

(a) sin A = sin B (b) cos A = cos B (c) tan A = tan B **(d) sec A = cosec B**

41) If $\sec\theta + \tan\theta = x$, then $\sec\theta =$

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

42) $\sqrt{\frac{1+\sin\theta}{1-\sin\theta}} =$

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

43) From a given point when height of an object increases the angle of elevation_____

(a) increases (b) decreases (c) neither increases nor decreases (d) equal

44) If the altitude of the sun is at 60°, then ttre height of the vertical tower that will cast a shadow of Iength 30 m is

(a) $30\sqrt{3}m$ (b) 15 m (c) $\frac{30}{\sqrt{3}}m$ (d) $15\sqrt{2}m$

45) A tower subtends an angle 30° at a point on the same level as its foot. At a second point h metres above ttre first the depression of the foot of the tower is 60°. The height of the tower is

(a) $\frac{h}{2}m$ (b) $\sqrt{3}\text{hm}$ **(c)** $\frac{h}{3}m$ (d) $\frac{h}{\sqrt{3}}m$

46) If the altitude of the light house is h metres and from it the angre of depression of Two ships on opposite sides of the light house are observed to be 30° and 45°, then the distance between the ships are

(a) $(\sqrt{3}+1)h$ metres (b) $(\sqrt{3}-1)h$ metres (c) $(\sqrt{3}h$ metres (d) $1+\left(1+\frac{1}{\sqrt{3}}\right)h$ metres

47) The angle of depression of a boat from a $50\sqrt{3}$ m high bridge is 30°. The horizontal distance of the boat from the bridge is _____

(a) 150 m (b) $150\sqrt{3}$ m (c) 60 m (d) $60\sqrt{3}$ m

48) A ladder of length 14 m just reaches the top of a wall. If the ladder makes an angle of 60° with the horizontal, then the height of the wall is _____

(a) $14\sqrt{3}$ m (b) $28\sqrt{3}$ m **(c)** $7\sqrt{3}$ m (d) $35\sqrt{3}$ m

49) The father of trigonometry is _____

(a) Phythogoras (b) Gottfried Wilhelm (c) Omar Khayam (d) Hipparchus

50) A Chord is a subsection of _____.

(a) Radius (b) Secant (c) Chord **(d) tangent**