QB365

Important Questions - Introduction to Trigonometry

10th Standard CBSE

Maths

Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

Total Marks : 50

Section - A

1) If $\sec\theta . \sin\theta = 0$, then find the value of θ **1**

2) If cos 2A = sin (A - 15), find A. **1**

3) Find the value of $\tan^2 10° - \cot^2 80°$. **1**

4) An observer 1.2 metere tall is 28.2 m away from the tower.The angle of elevation of the top of the tower from his eye is 60°.What is the height of the tower? **1**

5) If the angles of elevation of the top of a tower from two points distant a and b (a > b) from its foot and in the same straight line from it are respectively 30° and 60°, then find the height of the tower. **1**

6) In the given figure, if AD = $7\sqrt{3}$rn, then find the value of BC **1**

7) The height of a tower is 100m. When the angle of elevation of the Sun is 30°, then what will be the length of shadow of the tower? **1**

8) The top of two poles of height 16m and 10 mare connected by a wire of length I metre.If wire makes an angle of 30° with the horizontal, then find l. **1**

9) Find the length of kite string flying at 100 m above the ground with the elevation of 60^0 **1**

10) What is the angle formed by the line of sight with the horizontal, when the point being viewed is above the horizontal level? **1**

Section - B

11) If $A + B = 90^0$, prove that $\sqrt{\frac{\tan A\tan B+\tan A\cot B}{\sin A\sec B} - \frac{\sin^2 A}{\cos^2 A}} = \tan A.$ **2**

12) If $\sin\theta_1 + \sin\theta_2 + \sin\theta_3 = 3, 0^0 < \theta_1, \theta_2, \theta_3 \leq 90^0,$ find the value of $\cos\theta_1 + \cos\theta_2 + \cos\theta_3.$ **2**

13) Find cosec 30° and cos 60° geometrically. **2**

14) If $\cos(A - B) = \frac{\sqrt{3}}{2}$ and $\sin(A + B) = \frac{\sqrt{3}}{2}$, find A and B, where (A + B) and (A - B) are acute angles. **2**

15) Find the value of cos 2θ , if $2sin2\theta = \sqrt{3}$ **2**

16) Find the value of : **2**

sin 30° . cos 60° + cos 30° . sin 60°

Is it equal to sin 90° or cos 90° ?

17) If $b\cos\theta = a$, then prove that $cosec\theta + \cot\theta = \sqrt{\frac{b+a}{b-a}}$ **2**

18) Prove that : $\frac{\sin\theta.2\sin^3\theta}{2\cos^3\theta.\cos\theta} = \tan\theta$ **2**

19) Evaluate : $\frac{\sec 41^\circ \sin 49^\circ + \cos 29^\circ cosec 61^\circ - \frac{2}{\sqrt{3}}\left(\tan 20^\circ \tan 60^\circ \tan 70^\circ\right)}{2\left(\sin^2 31^\circ + \sin^2 59^\circ\right)}$ **2**

20) The horizontal distance between two towers is 60 m. The angle of elevation of the top of the taller tower as seen from the top of the shorter one is 30°. If the height of the taller tower is 150 m, them find the height of the shorter tower. **2**

Section - C

21) Prove the following identities, where the angles involved are acute angles for which the expressions are defined. **5**

$\frac{\tan\theta}{1-\cot\theta} + \frac{\cot\theta}{1-\tan\theta} = 1 + \sec\theta cosec\theta$

22) Prove the following identities, where the angles involved are acute angles for which the expressions are defined. **5**

$(\sin A + cosec A)^2 + (\cos A + \sec A)^2 = 7 + \tan^2 A + \cot^2 A$

23) Prove that : $\frac{\tan\theta+\sin\theta}{\tan\theta-\sin\theta} = \frac{\sec\theta+1}{\sec\theta-1}$ **5**

24) If $cosec\theta + \cot\theta = p$, then prove that $\cos\theta = \frac{p^2-1}{p^2+1}$ **5**

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