YugVanta

6. TRIGONOMETRY

SET-A Timing: 2HRS

1. **If** sin A = 3/5 and A is an acute angle, **find** cos A and tan A.
2. **If** cos B = 12/13, **find** sin B and tan B.
3. In a right-angled triangle, if the length of the opposite side is 5 and hypotenuse is 13, **find** the value of sin θ.
4. **Prove** that:

   $\sin^2\theta+\cos^2\theta=1$

   using Pythagoras Theorem.
5. Find the value of:

$$\frac{1+\tan^2 A}{\sec^2 A}$$

6. **Write down** the values of sin 30°, cos 60°, and tan 45°.
7. **Evaluate**:

$$\frac{\sin 30^\circ+\cos 60^\circ}{\tan 45^\circ}$$

8. Find the value of:

$$\frac{2\sin 60^\circ}{\sqrt{3}}$$

9. Simplify and find the value:

   $\tan 30^\circ \cdot \tan 60$
10. **If** θ = 90°, then what is the value of cos θ and tan θ?
11. **Prove**:

$$\frac{1-\cos^2 A}{\sin^2 A}=1$$

12. **Simplify**:

$$\frac{1+\cot^2 A}{\operatorname{cosec}^2 A}$$

13. **If** sin A = 4/5, **verify**:

    $\sec^2 A-\tan^2 A= = 1$
14. **Find** the value of:

    $\operatorname{Cosec}^2 45^\circ-\cot^2 45^\circ$
15. **Evaluate**:

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$\sin 60^\circ \cdot \cos 30^\circ + \cos 60^\circ \cdot \sin 30^\circ$

16. The angle of elevation of a ladder leaning against a wall is 60°. The foot of the ladder is 2 m away from the wall. **Find** the length of the ladder.
17. A man is standing 20 m away from a building. The angle of elevation of the top of the building is 45°. **Find** the height of the building.
18. A pole 10 m high casts a shadow of $10\sqrt{3}$ m. **Find** the angle of elevation of the sun.
19. From the top of a 15 m high tower, the angle of depression of a car on the ground is 30°. **Find** the distance of the car from the base of the tower.
20. A tree breaks due to storm and the top part bends so that it touches the ground making an angle of 60° with the ground. The distance from the foot of the tree to the point where it touches the ground is 10 m. **Find** the height of the tree before it broke.