

VISWABHARATI - GUDIVADA

WORK SHEET - 2

Chapters : Tangents & Secants to a Circle, Trigonometry, Applications of Trigonometry

Class: X

Subject: Mathematics

Name _____

Class/Sec: _____

Time: 75min

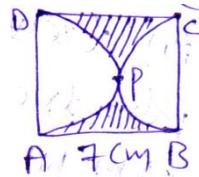
Marks: 30

Roll No: _____

Answer the following Questions.

15 × 2 = 30

1. Two concentric circles are radii 5cm and 3cm are drawn. Find the length of the chord of the larger circle which touches the smaller circle.
2. Prove that the tangents to circle at the end points of a diameter are parallel.
3. Find the area of the shaded region in figure, if ABCD is a square of side 7cm and APD and BPC are semicircles ($\pi = \frac{22}{7}$)



4. Calculate the length of tangent from a point 15cm away from the centre of a circle of radius 9cm.
5. If a circle touches all the four sides of a quadrilateral ABCD at points P, Q, R, S. Then prove that $AB + CD = BC + DA$.
6. If $\sin(A - B) = \frac{1}{2}$, $\cos(A + B) = \frac{1}{2}$, $0^\circ < A + B < 90^\circ$, $A > B$ find A, B
7. If $3\tan A = 4$, then find $\sin A$ and $\cos A$
8. Show that, $\tan 48^\circ \tan 16^\circ \tan 42^\circ \tan 74^\circ = 1$
9. Evaluate $(\sec^2\theta - 1)(\operatorname{cosec}^2\theta - 1)$
10. If A, B and C are interior angles of triangle ABC, then show that $\sin \frac{B+C}{2} = \cos \frac{A}{2}$
11. Rajender observes a person standing on the ground from a helicopter at an angle of depression 45° . If the helicopter flies at a height of 50 meters from the ground, what is the distance of the person from Rajender?
12. A contractor wants to set up a slide for the children to play in the park. He wants to set it up at the height of 2m and by making an angle of 30° with the ground. What should be the length of the slide?
13. A boat has to cross a river. It crosses the river by making an angle of 60° with the bank of the river due to the stream of the river and travels a distance of 600m to reach the another side of the river. What is the width of the river?
14. A boy observed the top of an electric pole at an angle of elevation of 60° when the observation point is 8 meters away from the foot of the pole. Find the height of the pole.
15. An observer of height 1.8m is 13.2 m away from a palm tree. The angle of elevation of the top of the tree from his eyes is 45° . What is the height of the palm tree?