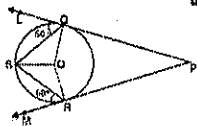


MODERN PUBLIC SCHOOL

Winter break Holiday Homework

Class X (Maths)

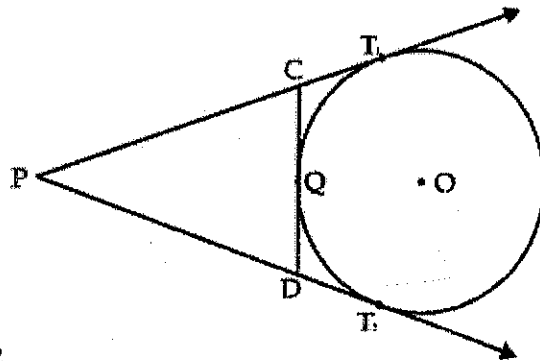
- 1) If the ratio of length of the shadow of a pole to its height is $\sqrt{3} : 1$, then elevation of the sun is
 - (a) 30°
 - (b) 45°
 - (c) 60°
 - (d) 120°
- 2) From the top of a tower h metre high, the angle of depression of two objects, which lie on either side of it are α and β . The distance between the two objects is
 - (a) $h (\cot \alpha + \cot \beta)$
 - (b) $h (\cot \alpha - \cot \beta)$
 - (c) $h (\tan \alpha + \tan \beta)$
 - (d) $h (\tan \alpha - \tan \beta)$
- 3) If the shadow of a tower standing on a level plane is found to be 50 m longer when sun's elevation is 30° than when it is 60° , then the height of the tower is
 - (a) 25 m
 - (b) $50\sqrt{3}$ m
 - (c) $25\sqrt{3}$ m
 - (d) $50\sqrt{3}\sqrt{m}$
- 4) In the figure, PQL and PRM are tangents to the circle with centre O at the points Q and R, respectively and S is a point on the circle such that $\angle SQL = 50^\circ$ and $\angle SRM = 60^\circ$. Then $\angle QSR$ is equal to



Long questions

Question 1

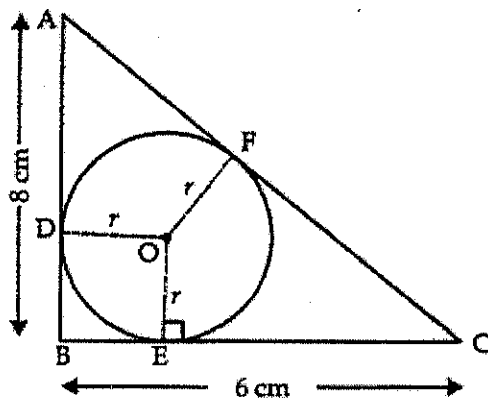
In fig., PT_1 and PT_2 are tangents to the circle drawn from an external point P. CD is a third tangent touching circle at



Q. If $PT_2 = 12$ cm and $CQ = 2$ cm. What is the length of PC?

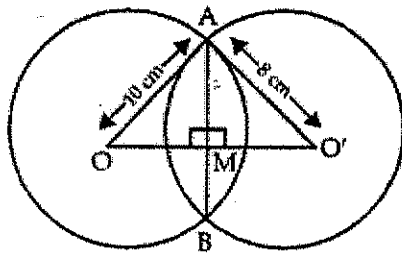
Question 2

ABC is a right triangle, right angled at B. A circle is inscribed in it. The lengths of the two sides containing the right angle are 6 cm and 8 cm. Find the radius of the incircle.



Question 3

Two circles of radii 10 cm and 8 cm intersect and the length of the common chord is 12 cm. Find the distance between their centres.



Question 4.

From an aeroplane vertically above a straight horizontal plane, the angles of depression of two consecutive kilometres stones on the opposite sides of the aeroplane are found to be α and β . Show that the height of the aeroplane is $\frac{\tan\alpha\tan\beta}{\tan\alpha+\tan\beta}$

Question 5 The angle of elevation of a jet plane from a point on the ground is 60° . After a flight of 15 seconds, the angle of elevation changes to 30° . If the jet plane is flying at a constant height of $1500\sqrt{3}$ m, find the speed of jet plane.

Question 6 . A cow is tied with a rope of length 14m at the corner of rectangular field of dimensions 20m x 16m, find area of field in which cow can graze

Question 7. Calculate the perimeter of an equilateral triangle if it inscribes a circle whose area is 154 cm^2

Question 8

the figure, AB and CD are common tangents to two circles of unequal radii. Prove that $AB = CD$. [CBSE Delhi 2017]

