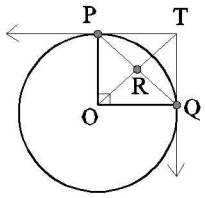
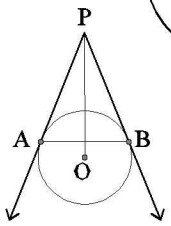
9) Two tangents PA & PB are drawn to a circle with center O , from an external point P. Prove that $\angle APB = 2\ \angle OAB$.

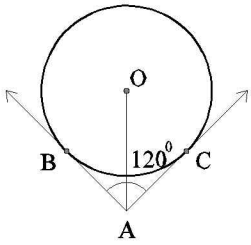
10) In the given figure OP $\perp$ OQ . The tangents to the circle at P & Q intersect at T . Prove that PQ and OT are right bisectors of each other.



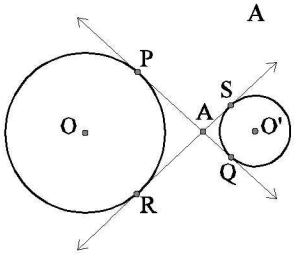
11) From a point P , two tangents PA & PB are drawn to a circle with center O . If OP is equal to the diameter of the circle , show that $\triangle$ APB is equilateral .



12) Two tangents AB & AC are drawn to a circle with center O such that $\angle BAC = 120^0$. Prove that OA = 2 . AB .



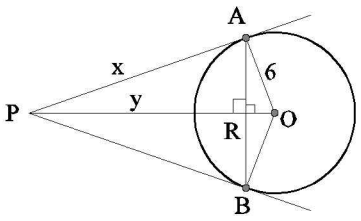
13) PQ & RS are common tangents to two circles with center O & O ' intersect each other at A . Prove that PQ = RS .



14) In two concentric circles a chord of the larger circle is a tangent to the smaller circle. If the length of the chord is 8 cm and diameter of the smaller circle is 6 cm , find the diameter of the larger circle . [ans. 10 cm]

15) PA & PB are two tangents drawn to a circle with center O from an external point P such that PA = 5 cm & $\angle APB = 60^0$. Find the length of the chord AB . [ans. 5 cm]

16) AB is a chord of a circle with center O , radius 6 cm and given AB = 9.6 cm . The tangents at A & B intersect at P . Find the length of the tangent PA . [ans. 8 cm]



17) The incircle of $\triangle$ ABC touches the sides BC , CA & AB at the points D , E & F respectively Show that AF + BD + CE = $\frac{1}{2}$ [perimeter of $\triangle$ ABC]

18) Two circles touch each other externally at C . Prove that the common tangent at C bisects the other two common tangents .