

3.5 Properties of Circles

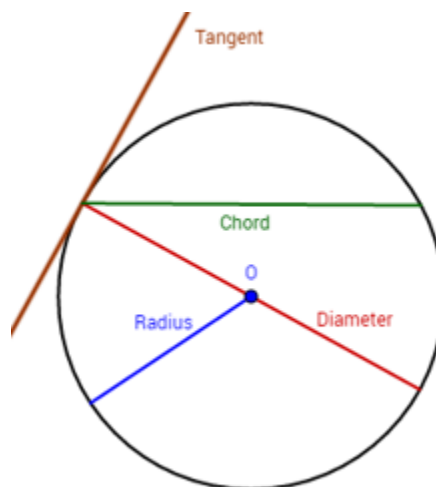
A Elements of a Circle

Chord: Any line segment joining two points on the circle

Diameter: A chord that passes through the centre of the circle

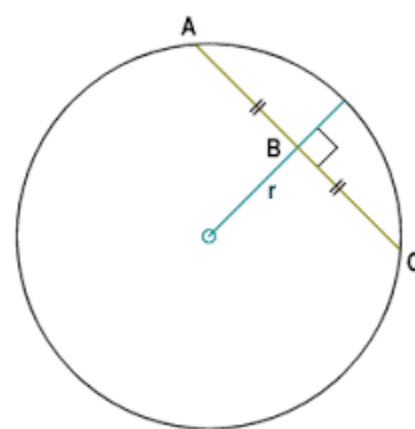
Radius: Any line segment joining the centre and any point on the circle

Tangent: Any line intersecting the circle at one point only



B Right Bisector of a Chord

The right bisector of a chord passes through the centre of the circle.



Example 1. Let consider the circle $x^2 + y^2 = 25$.

a) Show that the points $A(3,4)$ and $C(-4,3)$ are on this circle.

b) Find the midpoint B of the chord AC .

c) Find the equation of the right bisector of the chord AC .

d) Show that the centre O of the circle is a point on this right bisector.

Example 2. Find the equation of the tangent line to the circle $x^2 + y^2 = 100$ at the point $P(6,8)$.

Example 3. (Challenge) Find the coordinates of the centre and the radius of a circle that passes through the points $P(2,8)$, $Q(6,6)$, and $R(5,-1)$. What is the equation of this circle?

Notes: Textbook Pages 145-149
Homework: Textbook Pages 150 #1, 6, 9