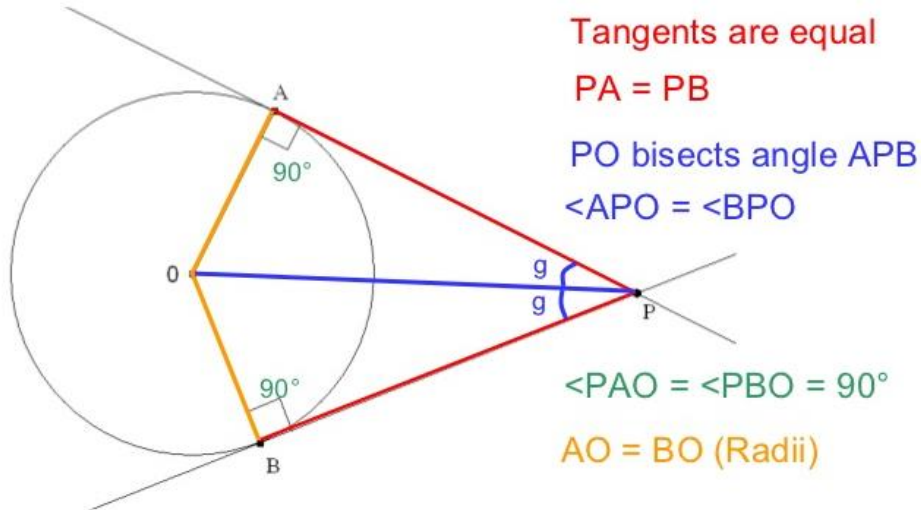


Unit 6.3

Tangent Lines

**Tangent:** a line that intersects a circle in exactly one point.  
Tangent lines are perpendicular to the radius.

Two tangents from a point outside circle



**Theorem**

$m\angle APB + m\angle AOB = 180$

*The two Triangles APO and BPO are Congruent*

**Perpendicular Tangent Theorem**

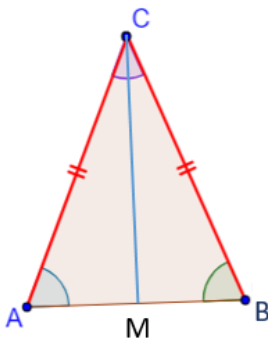
If a line is tangent to a circle, then it is perpendicular to the radius drawn to the point of tangency.

**Line Perpendicular to Radius Theorem**

In a line, if a line is perpendicular to a radius of a circle at its endpoint on the circle, then the line is tangent to the circle.

**Isosceles Triangle Theorem**

In any isosceles triangle, the angles opposite the congruent sides are also congruent.



- The congruent legs:  $AC = BC$
- The congruent base angles:  $\angle A = \angle B$
- The altitude CM bisects vertex angle  $\angle C$
- The altitude CM bisects the base AB
- This means:  $\angle ACM \cong \angle BCM$
- And  $\overline{AM} \cong \overline{BM}$