

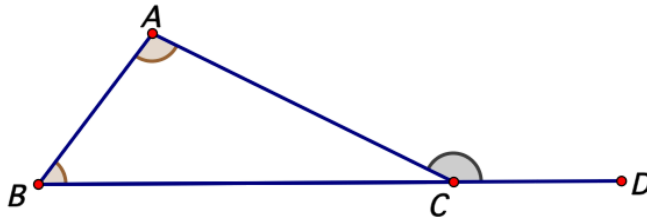
MTH 343 Review of Plane Geometry

Theorem:

The sum of the interior angles in any triangle is equal to a straight angle.

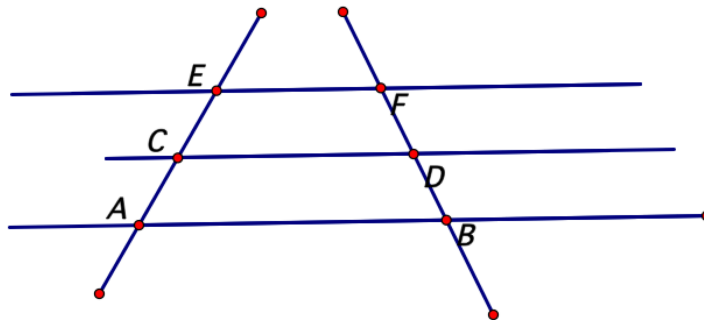
Corollary:

An exterior angle of a triangle is equal to the sum of the two non adjacent interior angles.



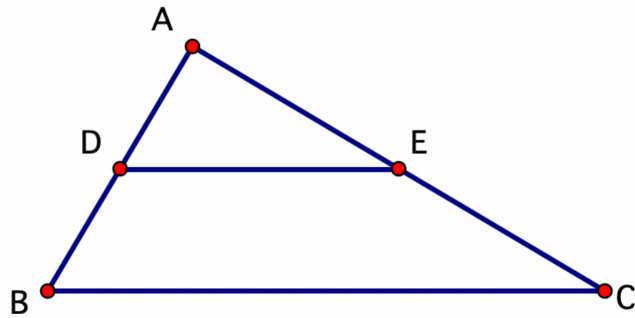
Theorem:

If three or more parallels intercept equal lengths on one transversal, they intercept equal lengths on any transversal.



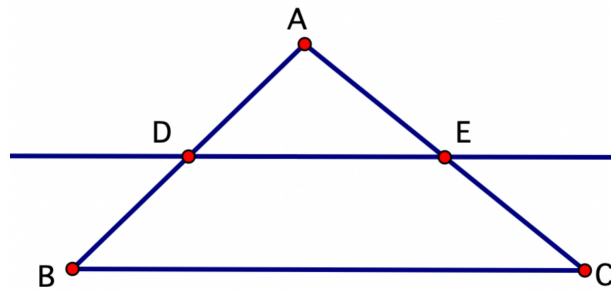
Theorem:

The line joining the midpoints of two sides of a triangle is parallel to the third side and equal to half of it.



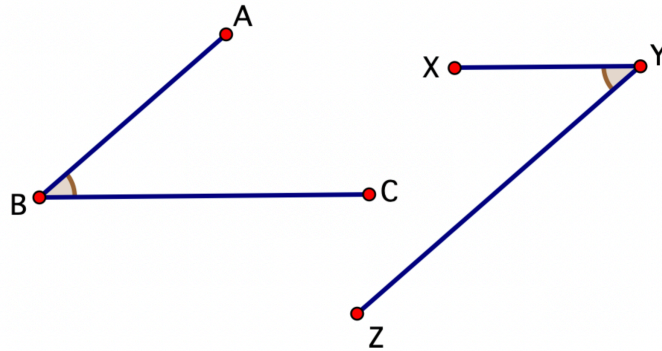
Theorem:

A line bisecting one side of a triangle and parallel to a second side bisects the third side.



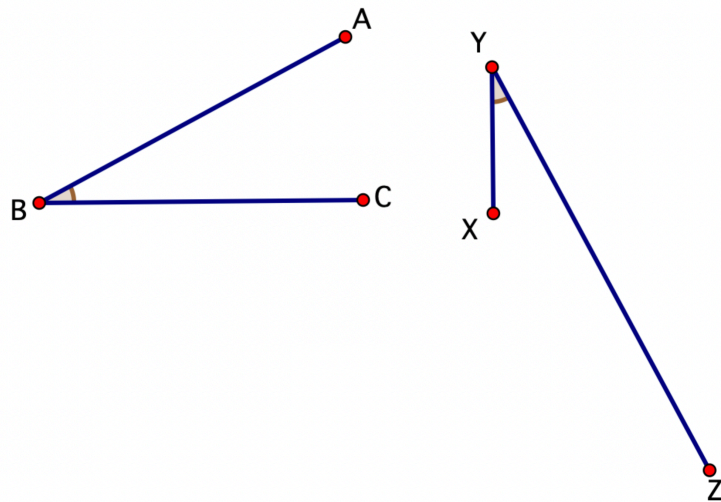
Theorem:

If two angles have their respective sides parallel then the angles are either supplementary or congruent.



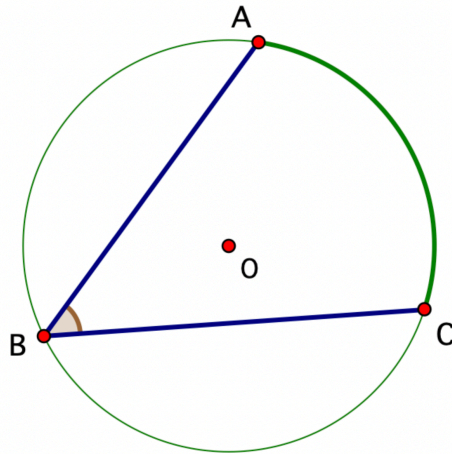
Theorem:

If two angles have their respective sides perpendicular then the angles are either supplementary or congruent.



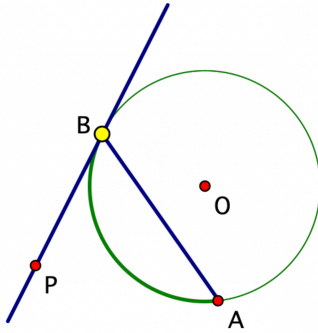
Theorem: (*Star Trek Lemma*)

An inscribed angle is measured by one half of its intercepted arc.



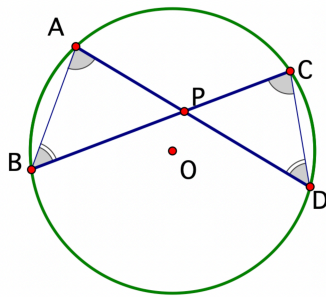
Theorem:

An angle formed by a tangent and a chord is measured by one half of its intercepted arc.



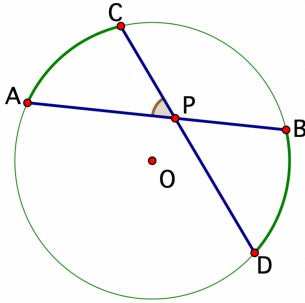
Theorem: (*Bow Tie Lemma*)

Given chords \overline{AB} and \overline{CD} , $\angle ADC \cong \angle ABC$ and $\angle BAD \cong \angle BCD$.



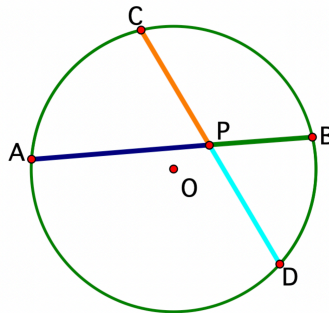
Theorem:

An angle formed by the intersection of two chords is measured by one half the sum of its intercepted arcs.



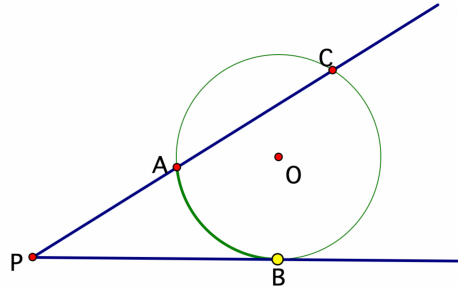
Theorem: (*Steiner's Theorem*)

If two chords intersect in a circle the product of the segments of one chord is equal to the product of the segments of the other.



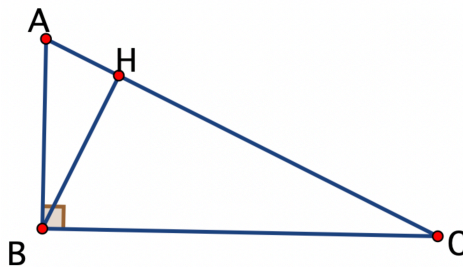
Theorem:

If from a point outside a circle a tangent and a secant are drawn, the tangent is the mean proportional between the secant and its external segment.



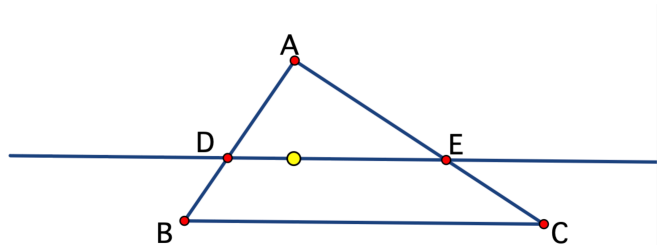
Theorem:

If the altitude is drawn to the hypotenuse of a right triangle, either leg is the mean proportional between the hypotenuse and the adjacent segment.



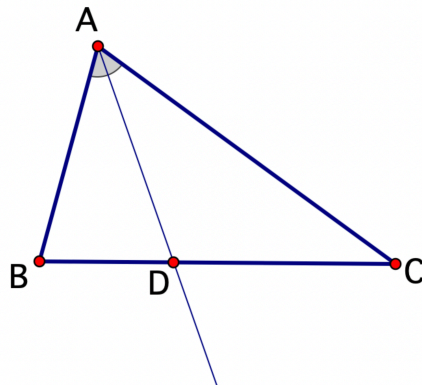
Theorem:

A line parallel to one side of a triangle divides the other two sides into proportional segments.



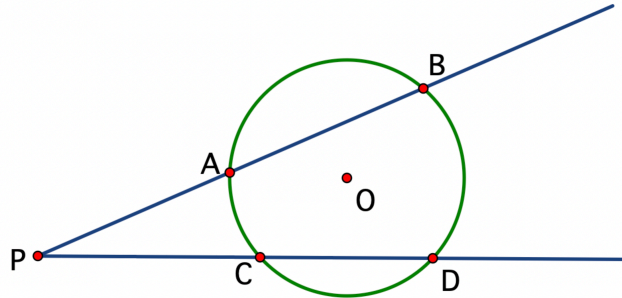
Theorem:

An angle bisector of a triangle divides the opposite side into segments proportional to the adjacent sides.



Theorem:

If two secants are drawn to a circle from an outside point, the product of one secant and its external segment is equal to the product of the other secant and its external segment.



Theorem:

The median to the hypotenuse of a triangle equals one half the hypotenuse.

