Geometry Info Sheet #30

Triangle Bisector Theorems

Definitions

Perpendicular Bisector: A ray, line, or segment that intersects a segment at its midpoint at a 90º angle

Angle Bisector: A ray, line, or segment that divides an angle into two congruent adjacent angles

Theorems

Perpendicular Bisector Theorem: If a point is on a perpendicular bisector of a segment, then the point is equidistant from the endpoints of the segment.

Converse of Perpendicular Bisector Theorem: If a point is equidistant from the endpoints of a segment, then the point is on a perpendicular bisector of the segment.

Angle Bisector Theorem: If a point is on the bisector of an angle, then the point is equidistant from the two sides of the angle.

Converse of Angle Bisector Theorem: If a point is in the interior of an angle and is equidistant from the two sides of the angle, then the point is on the bisector of the angle.