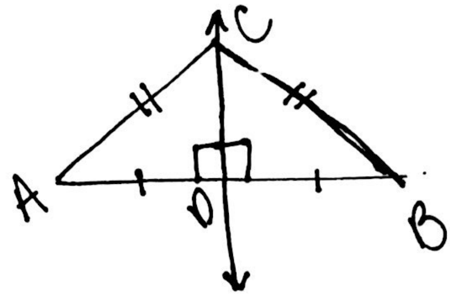
Perpendicular Bisector Theorem

If a point lies on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.

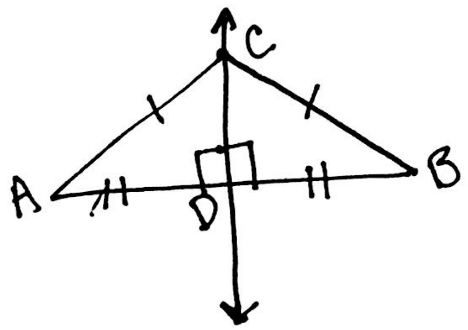


If $\overleftrightarrow{CD} \perp \overline{AB}$ and $\overline{AD} \cong \overline{DB}$

then $\overline{AC} \cong \overline{CB}$

Converse of Perpendicular Bisector Theorem

If a point is equidistant from the endpoints of a segment, then it is on the perpendicular bisector of the segment.

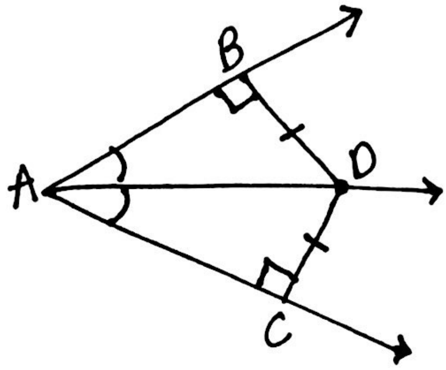


If $\overline{AC} \cong \overline{CB}$, then

$\overleftrightarrow{CD} \perp \overline{AB}$ and $\overline{AD} \cong \overline{DB}$

Angle Bisector Theorem

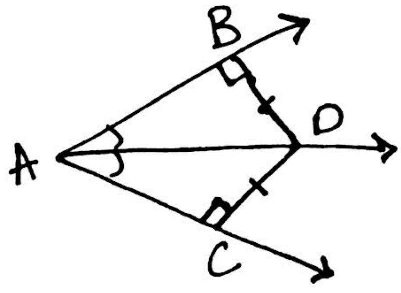
If a point is on a bisector of an angle, then the point is equidistant from the sides of the angle.



If $\overrightarrow{AD}$ bisects $\angle BAC$, $\overrightarrow{AB} \perp \overline{BD}$, and $\overrightarrow{AC} \perp \overline{CD}$, then $\overline{BD} \cong \overline{DC}$.

Converse of the Angle Bisector Theorem

If a point is on the interior of an angle and equidistant from the sides of the angle, then the point is on the angle bisector.



If $\overline{BD} \cong \overline{DC}$, $\overrightarrow{AB} \perp \overline{BD}$, and $\overrightarrow{AC} \perp \overline{CD}$, then $\overrightarrow{AD}$ bisects $\angle BAC$ ($m\angle BAD \cong m\angle DAC$)