Lesson 6.1 and 6.2 Perpendicular & Angle Bisectors

Sunday, February 5, 2023 7:23 PM

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https://app.peardeck.com/student/tqhofhieu

Lesson 6.1 and 6.2

Lesson 6.1 Perpendicular Bisectors

Lesson 6.2 Angle Bisectors

Content Objective

Students solve problems using perpendicular bisectors in triangles.

Students solve problems using angle bisectors.

Florida's B.E.S.T. Standards for Mathematics

MA.912.GR.1.1 Prove relationships and theorems about lines and angles. Solve mathematical and real-world problems involving postulates, relationships and theorems of lines and angles.

MA.912.GR.3.3 Use coordinate geometry to solve mathematical and real-world geometric problems involving lines, circles, triangles and quadrilaterals.

MA.912.GR.5.2 Construct the bisector of a segment or an angle, including the perpendicular bisector of a line segment.

Learning Intent (Target): *Today I will* be able to use perpendicular bisectors to find measures. Use angle bisectors to find measures and distance relationships. Write equations for perpendicular bisecto

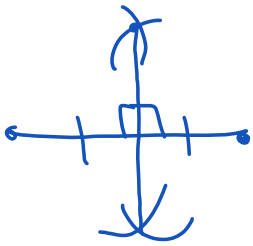
Success Criteria: *I'll know I'll have it when* I can accurately determine measures of the distance between segments of perpendicular bisectors and angle bisectors.

Accountable Team Task: *Therefore, I can* practice using interactive powerpoint for notes and investigations using geogebra .

Learn

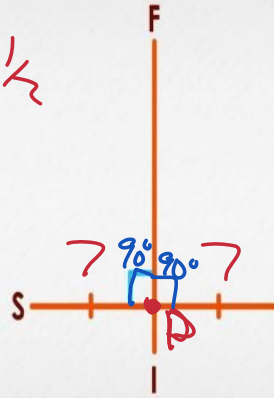
Perpendicular Bisectors of Segments

A **perpendicular bisector** is a line, segment, or ray that passes through the midpoint of a segment and is perpendicular to that segment.



Perpendicular Bisector Definition

A line, line segment or ray that bisects a given line segment or side of a polygon at a right angle to that line segment or side of a polygon.



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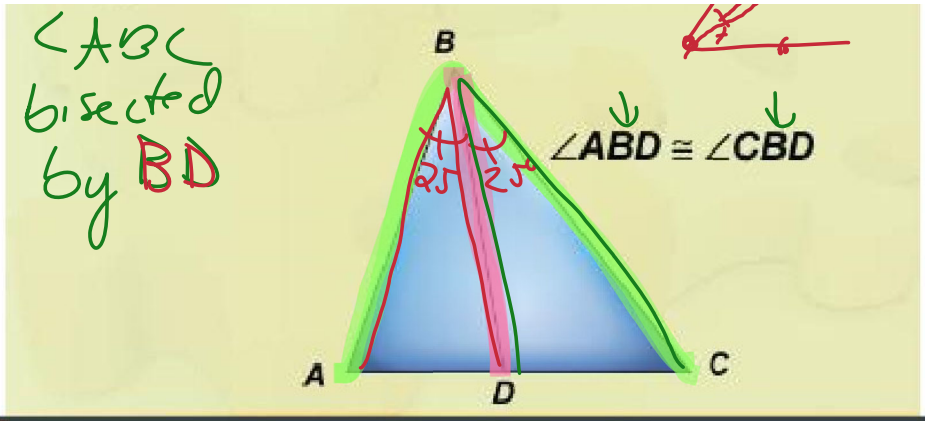
Definition

Angle Bisector of a Triangle	**A line or line segment that divides an interior angle of a triangle into two equal angles.**



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Click the link below to complete the Geogebra Investigations

Students browse: https://www.geogebra.org/classic

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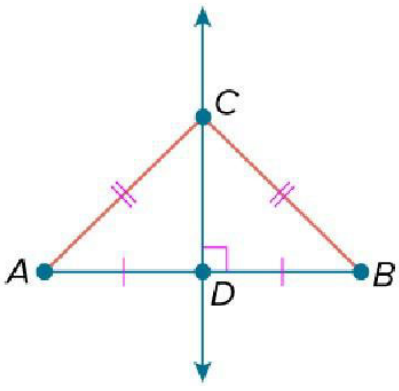
Learn

Perpendicular Bisectors of Segments

Theorem 6.1: Perpendicular Bisector Theorem

Words	If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.
Example	If $\overline{CD}$ is a $\perp$ bisector of $\overline{AB}$, then $AC = BC$.



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Perpendicular Bisectors of Segments

Theorem 6.2: Converse of the Perpendicular Bisector Theorem

Words	If a point is equidistant from the endpoints of a segment, then it is on the perpendicular bisector of the segment.
Example	In the triangle above, if $AC = BC$, then C lies on the $\perp$ bisector of $\overline{AB}$.

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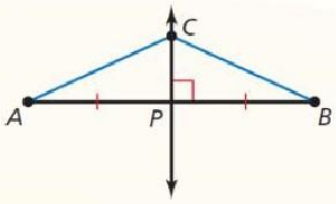
Theorems

Theorem 6.1 Perpendicular Bisector Theorem

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

If $\overleftrightarrow{CP}$ is the $\perp$ bisector of $\overline{AB}$, then $CA = CB$.

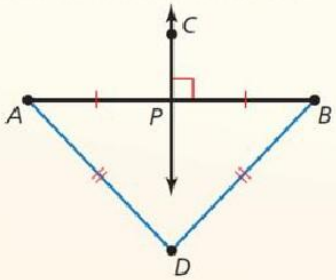


Proof p. 302

Theorem 6.2 Converse of the Perpendicular Bisector Theorem

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

If $DA = DB$, then point D lies on the $\perp$ bisector of $\overline{AB}$.



Proof Ex. 32, p. 308

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Example 1
Use the Perpendicular Bisector Theorem