Perpendicular Bisector

ID: 11198

<div align="right">

Time required
15 minutes

</div>

Activity Overview

In this activity, students will explore the perpendicular bisector theorem and discover that if a point is on the perpendicular bisector of a segment, then the point is equidistant from the endpoints. This is an introductory activity where students will need to know how to grab and move points, measure lengths, and construct the perpendicular bisector with Cabri Jr.

Topic: Triangles & Their Centers

- *Perpendicular Bisector Theorem*

Teacher Preparation and Notes

- *This activity was written to be explored with the Cabri Jr. on the TI-84.*

- *Before beginning this activity, make sure that all students have the Cabri Jr. application, and the Cabri Jr. files PerpBis.8xv and Points.8xv loaded on their TI-84 calculators.*

- ***To download the student worksheet and Cabri Jr. files, go to education.ti.com/exchange and enter "11198" in the keyword search box.***

Associated Materials

- *PerpendicularBisector_Student.doc*

- *PerpBis.8xv*

- *Points.8xv*

Suggested Related Activities

To download any activity listed, go to education.ti.com/exchange and enter the number in the keyword search box.

- *Points on a Perpendicular Bisector (TI-Nspire technology) — 8868*

- *Chords and Circles (TI-Nspire technology) — 9423*

- *Investigate Perpendicular Bisector (TI-84 Plus family) — 7262*

- *Perpendicular Bisector of a Line Segment (TI-84 Plus family) — 6856*

In this activity students will explore the properties of perpendicular bisectors. In the first part, students will measure the distance to a point on the bisector to identify congruent segments. In the second part, students will apply what they have learned about perpendicular bisectors to the context of map coordinates.

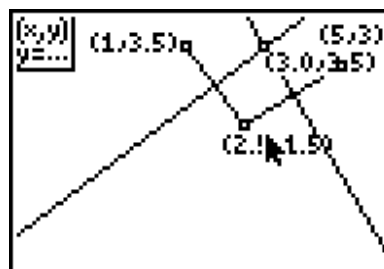### Problem 1 – Exploring the Perpendicular Bisector Theorem

Students will be exploring the distance from a point on the perpendicular bisector to the endpoints of a segment and discover that if a point is on the perpendicular bisector of a segment, then it is equidistant from the two endpoints of the segment.
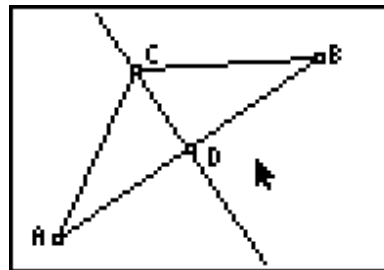
Students will measure the lengths of segments using the **Distance & Length** tool (press GRAPH and select **Measure > D.&Length**). To drag a point, students will move the cursor over the point, press ALPHA, move the point to the desired location, and then press ALPHA again to release the point.

Problem 2 – An Application of the Perpendicular Bisector Theorem

Students will apply what they learned from problem one and find the intersection of two perpendicular bisectors to find a point equidistant from three points.

To draw a segment, students should use the **Segment** tool (press ZOOM and select **Segment**). To draw a perpendicular bisector, press TRACE and select **Perp. Bis.**

Student Worksheet Solutions

Problem 1 – Exploring the Perpendicular Bisector Theorem

1. Answers will vary. The measures of $\overline{AC}$ and $\overline{BC}$ should be equal.

2. Sample answer: *AC* is congruent to *BC*. The distances are the same.

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

Problem 2 – An Application of the Perpendicular Bisector Theorem

4. (6, 7)

5. F7