

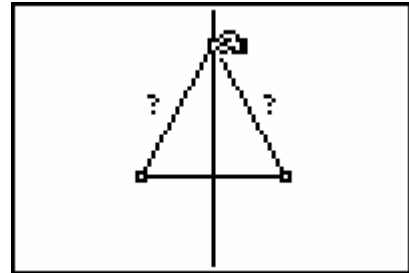


CABRI™ JR. ACTIVITY 7: DISTANCE FROM A POINT ON THE PERPENDICULAR BISECTOR OF A SEGMENT TO THE ENDPOINTS OF THE SEGMENT

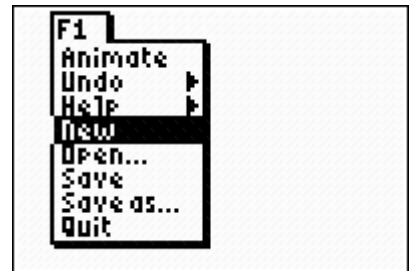
ACTIVITY OVERVIEW:

In this activity we will

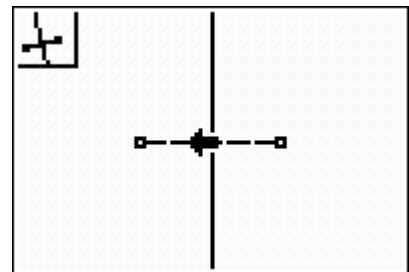
- Draw a line segment
- Draw the perpendicular bisector
- Investigate the distance between a point on the perpendicular bisector and endpoints of the segment.



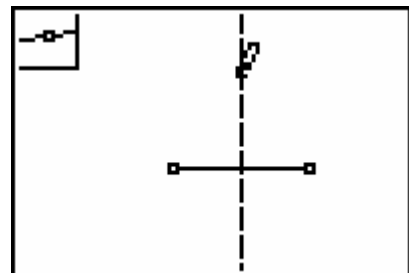
Press **[APPS]**. Move down to the CabriJr APP and press **[ENTER]**. Press **[Y=]** for the F1 menu and select **New**. (If asked to **Save changes?** press **[↓]** **[ENTER]** to choose “No.”)



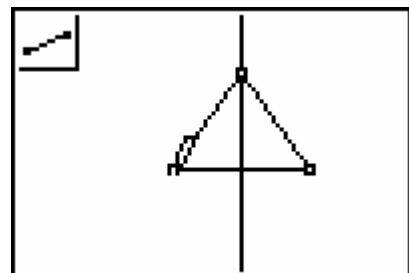
Press **[WINDOW]** for the F2 menu, move to **Segment**, and press **[ENTER]**. Move the pencil to the desired location of the first endpoint of the segment and press **[ENTER]**. Move right to the desired location of the second endpoint and press **[ENTER]**. Press **[ZOOM]**, move to **Perp. Bis.**, and press **[ENTER]** to access the tool. Move the pencil until it becomes an arrow and the segment is flashing. Press **[ENTER]** and the perpendicular bisector is drawn.



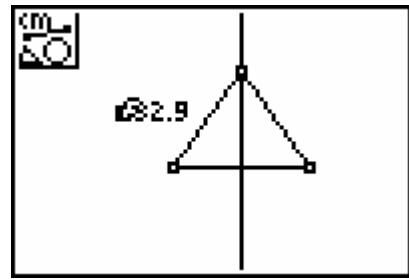
Press **[WINDOW]** for the F2 menu, move to **Point**, move right and down to **Point on** and press **[ENTER]**. Move the pencil until the perpendicular bisector is flashing, and press **[ENTER]**.



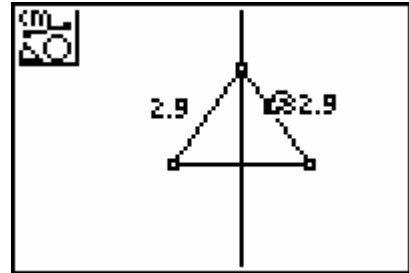
Press **[WINDOW]**, move to **Segment**, and press **[ENTER]**. Move the pencil until the point drawn on the bisector is flashing and press **[ENTER]**. Move to one of the segment endpoints, and once it is flashing, press **[ENTER]**. Now create another segment between the point on the perpendicular bisector and the other endpoint. (The distance from the endpoints to the point on the perpendicular bisector can be measured without the segments, but they provide a better illustration of the distance measured.)



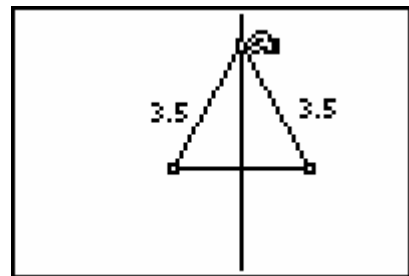
Press **GRAPH** for F5. Move down to **Measure**, and move right to select **D. & Length**, and press **ENTER**. Move the pencil near one of the segments and when it is dashed and flashing, press **ENTER**. The *hand* is active and the measurement can be moved to a convenient location. Press **ENTER** to deactivate the *hand*.



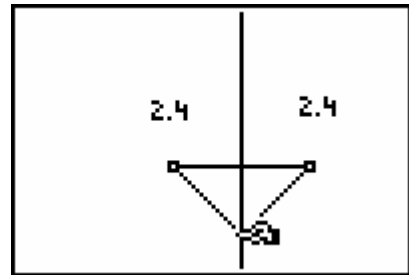
The measurement tool is still active and you can now measure the distance from the point on the perpendicular bisector to the other endpoint of the segment. Move the pencil to the other segment and press **ENTER** when it is flashing. The new measurement appears and can be placed where desired by pressing **ENTER**. Press **CLEAR** to deactivate the measurement tool.



Move the arrow near the point on the perpendicular bisector. When the point is flashing, press **ALPHA** to activate the *hand*. Move the point up to a new location on the perpendicular bisector and observe the changes in the measurements of the distances to the endpoints.



Move the point down to a new location on the perpendicular bisector and observe the changes in the measurements of the distances to the endpoints. Any point on the perpendicular bisector of a segment is equidistant from the endpoints of the segment.



Exit the APP using F1 and selecting Quit, or by pressing **2nd** **MODE** for **QUIT**.



$$\overline{AQ} \cong \overline{BQ} \text{ and } \overline{PQ} \perp \overline{AB}$$

Conjecture: Any point on the perpendicular bisector of a line segment is _____ from the endpoints of the segment.

