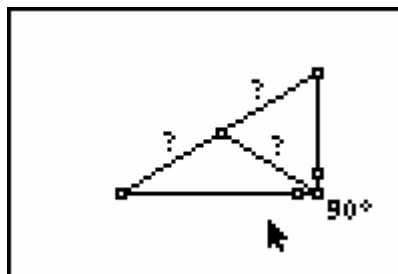


CABRI™ JR. ACTIVITY 14: INVESTIGATING SEGMENTS IN A RIGHT TRIANGLE

ACTIVITY OVERVIEW:

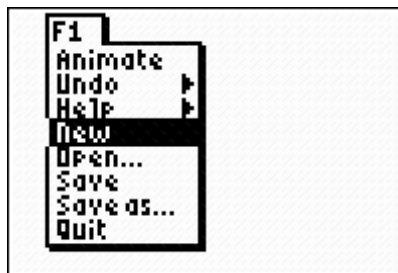
In this activity we will

- Draw a right triangle
- Find the midpoint of the hypotenuse
- Measure the distances from the midpoint of the hypotenuse to each vertex
- Make a conjecture about these distances

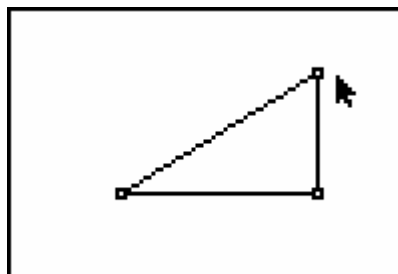


Press **[APPS]**. Move down to the CabriJr APP and press **[ENTER]**. Press **[ENTER]**, or any key, to begin using the application.

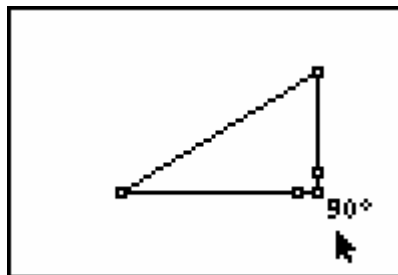
Press **[Y=]** for the F1 menu and select **New**. (If asked to **Save changes?** press **[↩]** **[ENTER]** to choose “No.”)



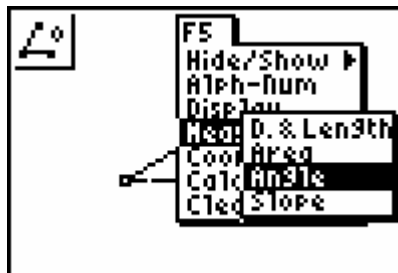
Press **[WINDOW]** for F2, move down to **Triangle** and press **[ENTER]**. Press **[ENTER]** to mark the first vertex of a triangle. Move the cursor several times to the right and press **[ENTER]** to mark the second vertex. Move the cursor straight up several times and press **[ENTER]** to mark the third vertex of the triangle.



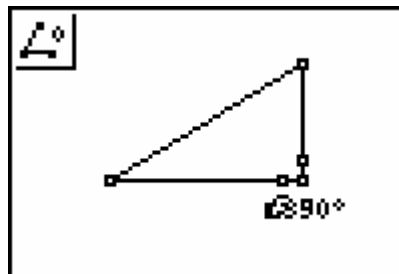
Since the triangle was drawn using only moves to the right and up, it should be a right triangle. This can be supported by using the angle measuring tool in the F5 menu as shown in the next steps



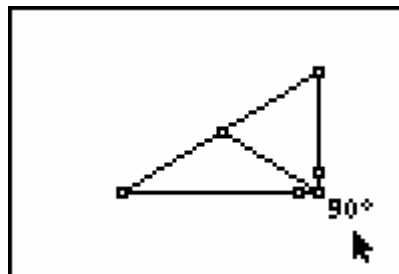
Press **[GRAPH]** for the F5 menu, move down to **Measure**. Move right and down to **Angle** and press **[ENTER]**. To measure an interior angle you will select three points. As in naming an angle, the second point will be the vertex of the angle. Each of the other two points can be a vertex or any point on the side of the triangle.



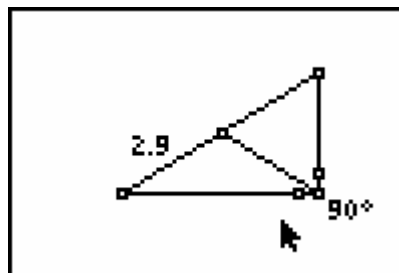
Move the pencil until a side of the triangle is flashing, then press **ENTER** to mark a point on the side. Move the pencil until the vertex of the angle to be measured is flashing. Press **ENTER**. Move the pencil until a second side is flashing. Press **ENTER** to mark the third point naming the angle. The measurement of the interior angle is displayed and the pointer changes to a *hand*. Use the arrow keys to move the measurement to a convenient location. Press **CLEAR** to deactivate the hand.



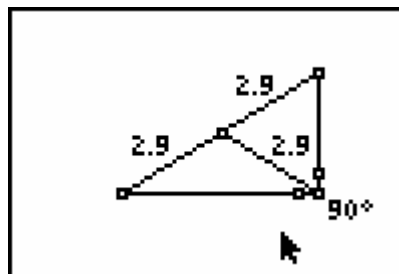
Press **ZOOM** for the F3 menu, move down to **Midpoint** and press **ENTER**. Move the arrow until the hypotenuse is flashing and press **ENTER**. Press **WINDOW** for the F2 menu, move down to **Segment** and press **ENTER**. Move the pencil until the midpoint of the hypotenuse is flashing and press **ENTER**. Move until the vertex point of the right angle is flashing and press **ENTER**.



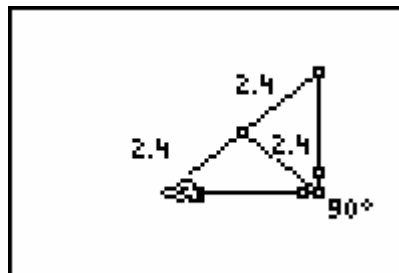
Next we measure the lengths of the segments drawn from the midpoint of the hypotenuse to each vertex. Press **GRAPH** for the F5 menu and move down to **Measure** and right to **D. & Length**. Press **ENTER**. Move to one endpoint of the hypotenuse and press **ENTER**. Move to the midpoint of the hypotenuse and press **ENTER**. Move the measurement to a convenient location.



The **Measurement** tool is still active, so repeat the process above until you have the measurements for the other two segments (from the midpoint to a vertex).
Based on the measurements, what appears to be true about the distance from the midpoint of the hypotenuse of a right to each of the vertices?



The midpoint of the hypotenuse of a right triangle is equidistant from the vertices of the triangle.
Test this conjecture by moving the vertices at the acute angles to change the lengths of the sides of the triangles. (Be careful not to change the right angle.)



To exit the APP, press **Y=** for the F1 menu. Move to **Quit**, then press **ENTER**. (Or you can press **2nd** **MODE** for [QUIT].)

