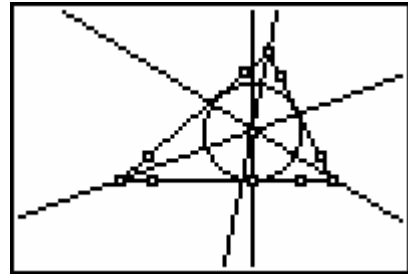


CABRI™ JR. ACTIVITY 12: INSCRIBING A CIRCLE IN A TRIANGLE

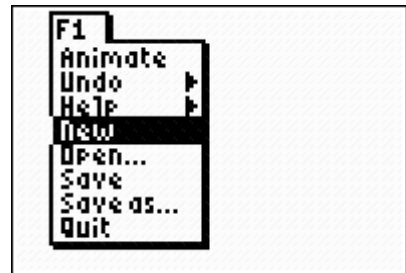
ACTIVITY OVERVIEW:

In this activity we will

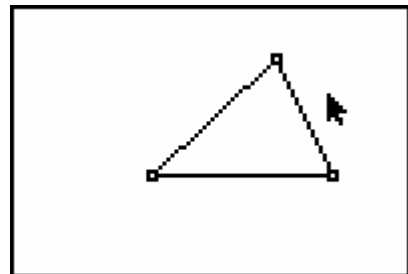
- Draw a triangle
- Draw the bisector of each angle of the triangle
- Locate the *incenter*
- Find the distance from the *incenter* to a side of the triangle
- Inscribe a circle in the triangle



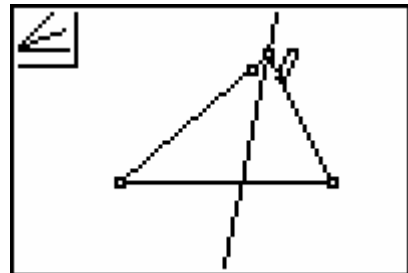
Press **[APPS]**. Move down to the CabriJr APP and press **[ENTER]**. Press **[Y=]** for the F1 menu and select **New**. (If asked to **Save changes?** press **[↩]** **[ENTER]** to choose “No.”)



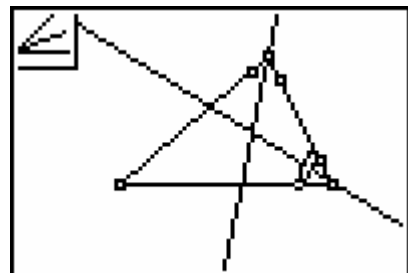
Press **[WINDOW]** for F2, move down to **Triangle** and press **[ENTER]**. Move to the location of a vertex and press **[ENTER]**. Move to the second vertex and press **[ENTER]**. Move to the third vertex and press **[ENTER]**. Press **[CLEAR]** to exit the triangle drawing tool. Next you will use the tools in F3 to draw the bisector of each angle in the triangle



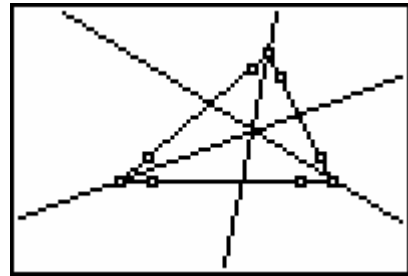
Press **[ZOOM]** for the F3 menu, move to **Angle Bis.**, and press **[ENTER]**. Move the pencil until one side of the triangle is flashing then press **[ENTER]**. This marks a point on the side of the triangle. Move until the vertex point flashes and press **[ENTER]**. Move until the other side forming the angle is flashing and press **[ENTER]** again. You have used 3 points to identify angle and the angle bisector has been drawn.



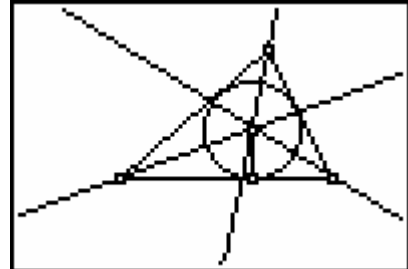
With the **Angle Bis.** tool still active, press **[ENTER]** to select that point again OR move to another point on the side of the triangle and press **[ENTER]**. Move to the next vertex point and press **[ENTER]**, then move to point on the other side forming the angle and press **[ENTER]**.



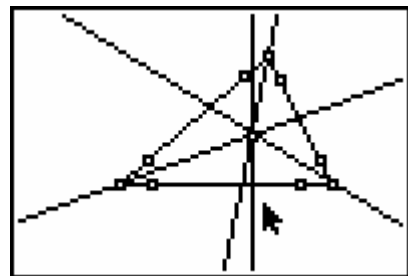
With the **Angle Bis.** tool still active, press **[ENTER]** to select that point again OR move to another point on the side of the triangle and press **[ENTER]**. Move to the remaining vertex point and press **[ENTER]**, then move to point on the other side forming the angle and press **[ENTER]**. Press **[CLEAR]** to exit the **Angle Bis.** tool.



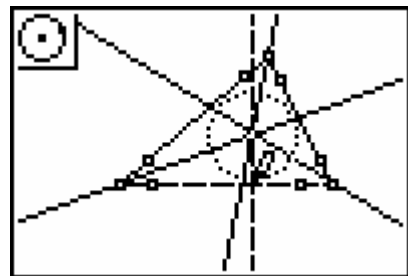
The bisectors of the angles of the triangle intersect at a common point. This point is called the *incenter* of the triangle and it is equidistant from the sides of the triangle. The *incenter* is also the center of the circle *inscribed* in the triangle. In the next steps we will find the distance from the *incenter* to a side of the triangle and use this distance as the radius of a circle with its center at the *incenter*.



Press **[ZOOM]** for the F3 menu, move to **Perp.**, and press **[ENTER]**. Move to the *incenter* (two of the angle bisectors will be flashing indicating that you want their intersection) and press **[ENTER]**. Move the arrow to a side of the triangle and press **[ENTER]**. You now have a line through the *incenter* and perpendicular to one of the sides of the triangle.



Press **[WINDOW]** for the F2 menu, move to **Circle**, and press **[ENTER]**. Move the pencil until the *incenter* is flashing and press **[ENTER]**. Move the pencil until you are at the intersection of the side and the line perpendicular to it. Press **[ENTER]** when both are flashing to draw circle with its center at the *incenter* and with a radius determined by the perpendicular distance from the *incenter* to the side of the triangle. This is the *inscribed circle*.



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

