

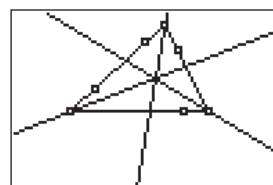
Approximate
Total Time:
30 minutes

Incenter of a Triangle

ACTIVITY OVERVIEW:

In this activity we will

- Draw a triangle
- Draw the bisector of each angle of the triangle
- Locate the *incenter*
- Explore properties of the *incenter*



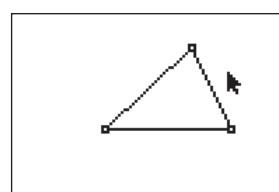
In this activity we will observe a special characteristic of the bisectors of the angles in a triangle. We will be able to test our conjecture by changing the size and shape of the triangle.

NCTM Geometry Standard: Analyze characteristics and properties of 2- and 3-dimensional geometric shapes and develop mathematical arguments about geometric relationships.



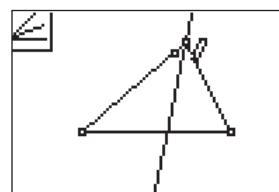
1

Press [APPS]. Move down to the CabriJr APP and press [ENTER]. Press [ENTER], or any key, to begin using the application. Press [$\boxed{Y=}$] for the F1 menu and select **New**. (If asked to **Save changes?**, press [\leftarrow] [ENTER] to choose "No.")



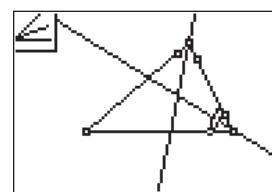
2

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.



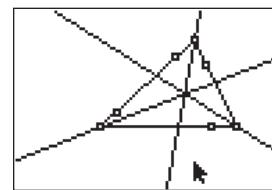
3

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 an angle and the angle bisector has been drawn.



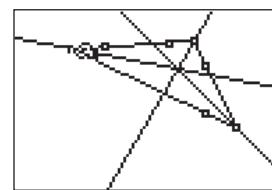
4

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 a point on the other side forming the angle and press [ENTER].



5

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 a point on the other side forming the angle and press [ENTER]. Press [CLEAR] to exit the **Angle Bis.** tool.

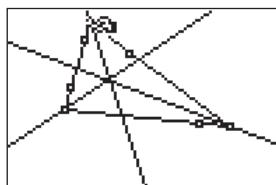


6

What appears to be true about the intersection of the bisectors of the angles of the triangle?
(They appear to intersect at a common point.)

Move to a vertex of the triangle, press [**ALPHA**] to activate the *hand* and move the vertex to a new location.

Incenter of a Triangle



7

Press [CLEAR] to deactivate the *hand* and move to a different vertex of the triangle. Press [ALPHA] and move the point at this vertex.

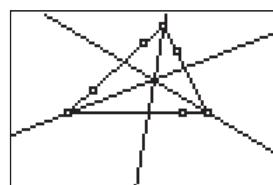
What appears to be true about the intersection of the bisectors of the angles of the triangle?



8

Press [CLEAR] to deactivate the *hand* and move to a different vertex of the triangle. Press [ALPHA] and move the third point defining the triangle.

What appears to be true about the intersection of the bisectors of the angles of the triangle?



9

The bisectors of the angles of the triangle intersect at a common point. This point is called the *incenter* of the triangle.



For TI-Navigator™ Users

You may wish to save this file and send it to students as an APP VAR for exploration and investigation in Activity 12. For help, see page 74.



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