

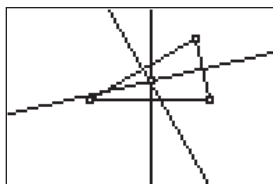
Exploring the Circumcenter of a Triangle

Approximate
Total Time:
30 minutes

ACTIVITY OVERVIEW:

In this activity we will

- Draw a triangle
- Draw the perpendicular bisector of each side
- Locate the *circumcenter*
- Explore properties of the *circumcenter*



What happens when you draw the perpendicular bisectors of all three sides of a triangle? Does the same thing occur in any triangle? We can find answers to these questions as we develop an understanding of the *circumcenter* of a triangle.

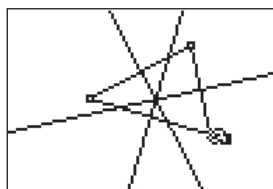
NCTM Geometry Standard: Analyze characteristics and properties of 2- and 3-dimensional geometric shapes and develop mathematical arguments about geometric relationships.



1

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

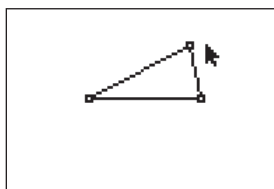
Press [Y=] for the F1 menu and select **New**. (If asked to **Save changes?** press [X] [ENTER] to choose "No.")



4

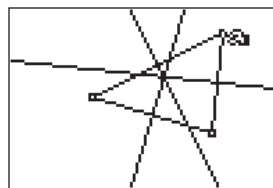
What appears to be true about the intersection of the perpendicular bisectors of the sides of the triangle? (They appear to intersect at a common point.)

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



2

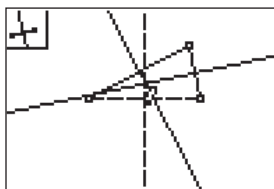
Press [WINDOW] for the F2 menu, move down to **Triangle** and press [ENTER]. Move to the location of a vertex and press [ENTER]. Move to the second vertex and press [ENTER]. Move to the third vertex and press [ENTER]. Press [CLEAR] to exit the triangle drawing tool.



5

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 perpendicular bisectors of the sides of the triangle?



3

Press [ZOOM] for the F3 menu and move down to **Perp. Bis.** and press [ENTER]. Move the arrow until one side of the triangle is selected (flashing) and press [ENTER]. The **Perp. Bis.** tool is still active, so move to another side of the triangle and press [ENTER] when the side is flashing. Repeat for the third side of the triangle. Press [CLEAR] to exit the **Perp. Bis.** drawing tool.

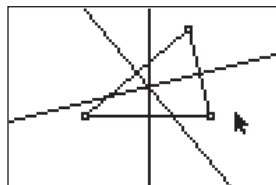


6

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 perpendicular bisectors of the sides of the triangle?

Exploring the Circumcenter of a Triangle



7

The perpendicular bisectors of the sides of the triangle intersect at a common point. This point is called the *circumcenter* of the triangle.

What is true about the *circumcenter* of an acute triangle? an obtuse triangle? a right triangle?



For TI-Navigator™ Users

You may wish to save this file as an APP VAR for later exploration and investigation. The APPVAR can be sent to everyone as you begin Activity 13. For help, see page 74.



8

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