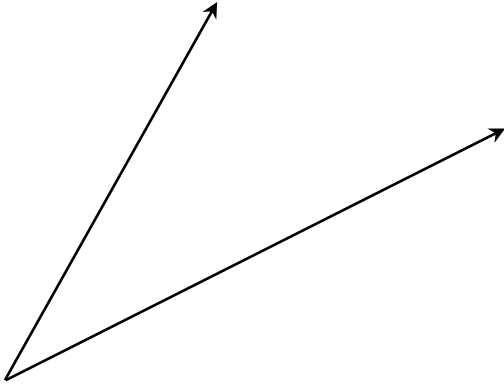


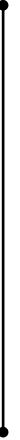
5.3 Notes – Angle Bisectors in a Triangle

Draw the following using a compass and straight edge.

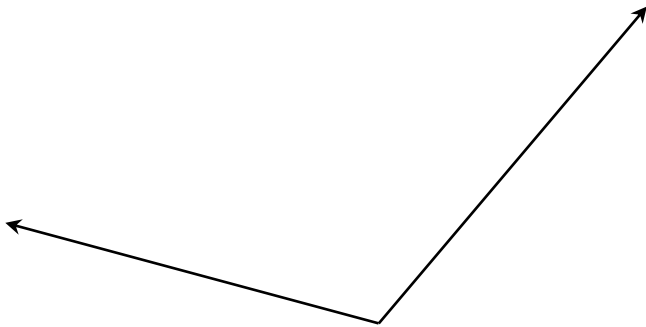
1) Bisect the following angle.



2) Draw a perpendicular bisector to the line on the right. (Clue: draw two sets of different measured arcs on the same side of the line)



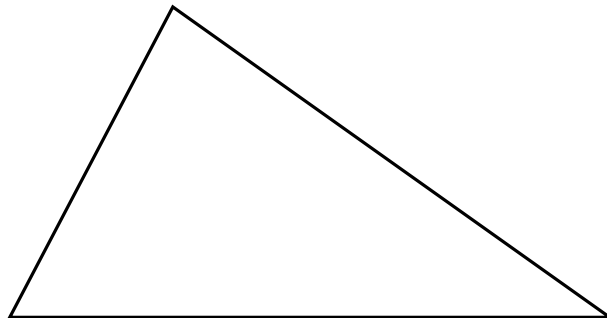
3) Bisect the following angle.



4) Draw the perpendicular from the line to the point off the line.



Incenter – In order to make an incenter of a triangle, you need to bisect each angle of the triangle. (It's ok if your arcs go beyond this text.)



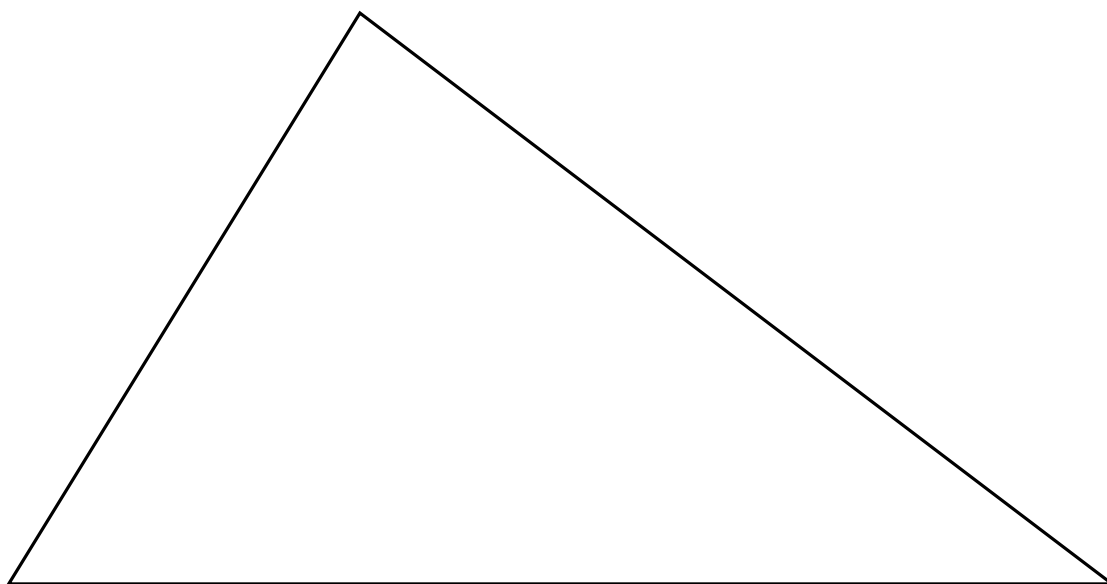
Special Properties of incenters:

The prefix “in-“ means _____.

Inscribed Circle:

To make an inscribed circle:

- 1) Make an incenter of a triangle
- 2) Draw a perpendicular from the incenter to one of the sides
- 3) With your compass, measure the distance from the incenter to the side where the perpendicular intersects
- 4) Draw a circle with the measured compass using the incenter as the center of the circle.



Investigations

-Go to my website to the sketchpad site.

-Open the sketch named “5.2-5.4 – Points of Concurrency”

Investigation 1 – Circumcenter Properties (Tap on the tab on the bottom labeled “Circumcenter”)

5) What relation does the circumcenter have with the vertices of a triangle?

6) In what kind of triangle is the circumcenter always inside the triangle?

7) In what kind of triangle is the circumcenter on one of the sides of the triangle?

8) What is the special name of that side for that specific triangle?

9) At what specific point on that triangle is the circumcenter on?

10) Complete the following:

On a _____ triangle, the _____ of the hypotenuse is equidistant from all three vertices of the triangle.

11) In what kind of triangle is the circumcenter outside the triangle?

Investigation 2 – Incenter Properties (Tap on the tab on the bottom labeled “Incenter”)

12) What relation does the incenter have with the sides of a triangle?

13) In what kind of triangles are the incenters always inside the triangle?

14) In what kind of triangle is the incenter and circumcenter the same point?

Put the following in your POK:

Circumcenter – In a triangle, the point of concurrency of the perpendicular bisectors of the sides.

Circumscribed circle – A circle drawn around another shape.

Incenter – In a triangle, the point of concurrency of all three angle bisectors.

Inscribed circle – A circle drawn inside another shape.

- **TAKE A PICTURE OF EACH PAGE OF THESE NOTES.**
- **PLACE THE PICTURES ON A NEW NOTABILITY FILE.**
- **SHOWBIE THE NOTES TO ME.**