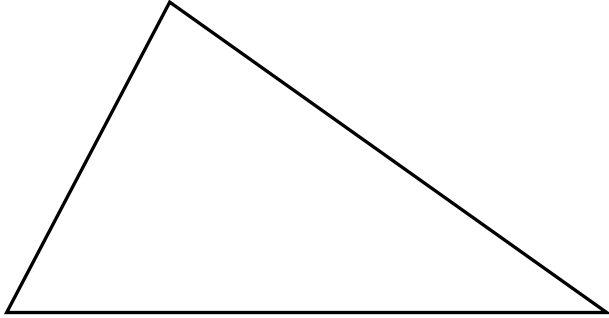


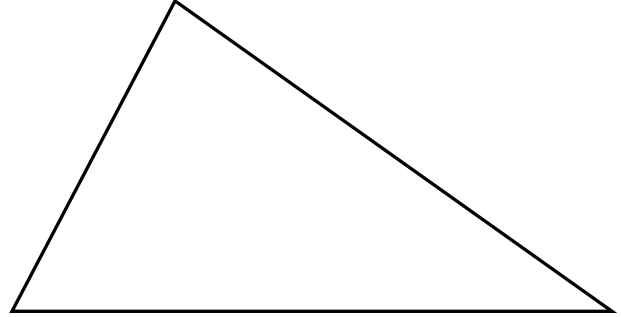
## **5.4 Notes – Medians and Altitudes of Triangles**

Draw the following using a compass and straight edge.

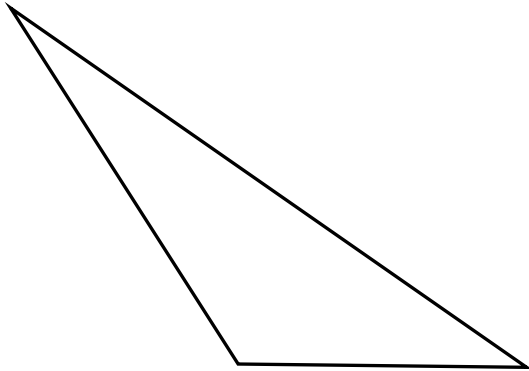
1) Draw an altitude to the base.



2) Draw a median.



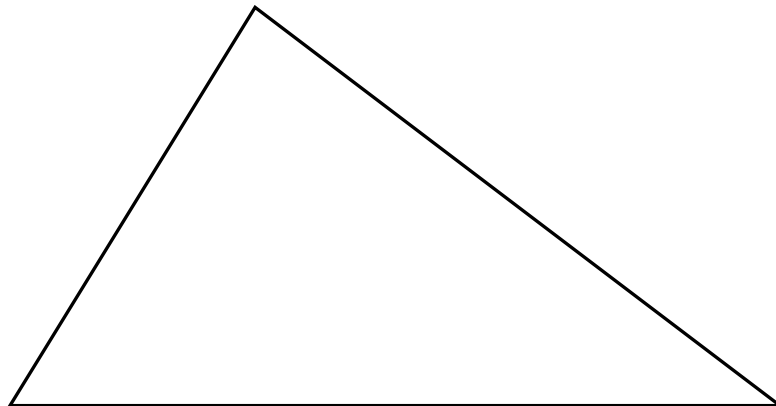
3) Draw an altitude to the base.



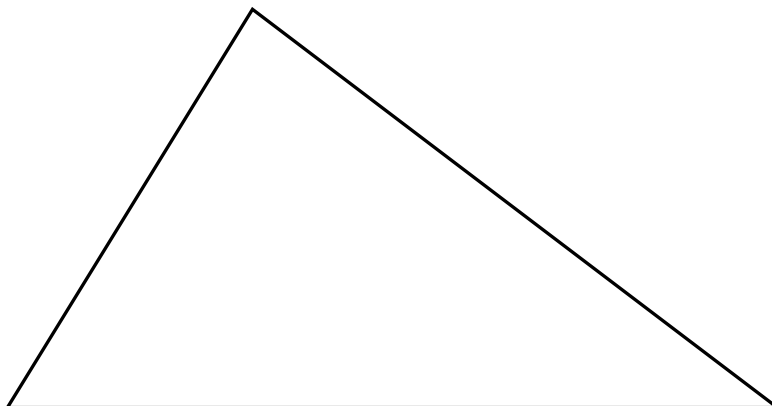
### **Special Properties of incenters:**

The prefix “ortho-“ means \_\_\_\_\_.

**Orthocenter:** To make an inscribed circle, make three intersecting altitudes.



**Centroid:** To make an inscribed circle, make three intersecting medians.



### **Investigations**

- Go to my website to the sketchpad site.
- Open the sketch named “5.2-5.4 – Points of Concurrency”

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

- 4) In what kind of triangle is the orthocenter always inside the triangle?
- 5) In what kind of triangle is the orthocenter on one of the vertices of the triangle?
- 6) What kind of angle is formed at that vertex?
- 7) In what kind of triangle is the orthocenter outside the triangle?

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

- 8) In what kind of triangles are the centroids inside the triangle?
- 9) Pick one median that helps form the centroid. The centroid divides the median into two parts. One segment is between vertex and centroid. The other is between the centroid and the midpoint of the opposite side. What is the relationship between those two segments?
- 10) What is the RATIO of the larger part to the smaller part?
- 11) What fraction is the larger piece a part of the entire median?
- 12) What fraction is the smaller piece a part of the entire median?

Put the following in your POK:

Orthocenter – In a triangle, the point of concurrency of the altitudes.

Centroid – In a triangle, the point of concurrency of the medians.

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