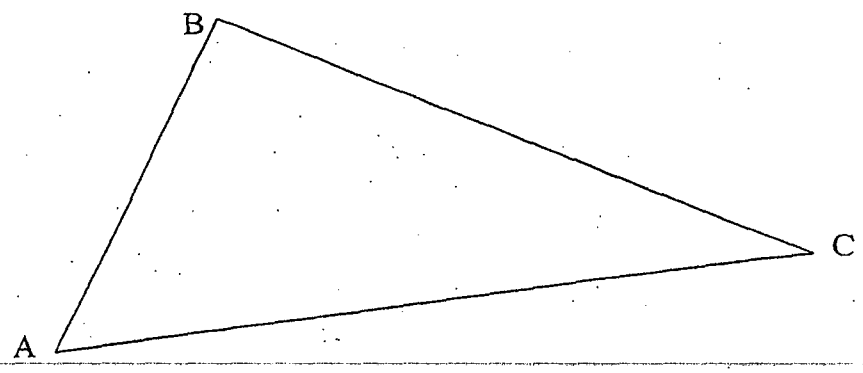
Name _____ Date _____

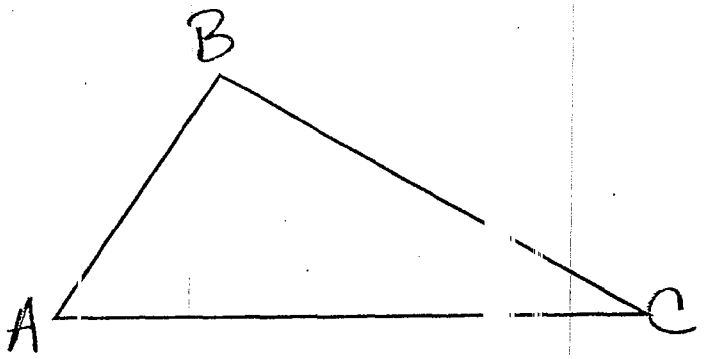
AIM: Practice with constructions

Reconstruct the following triangle and explain how you did it!

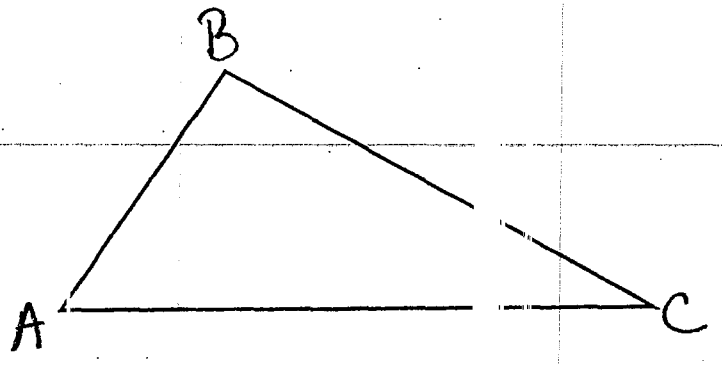


Constructing A itudes, Medians, Angle Bisectors

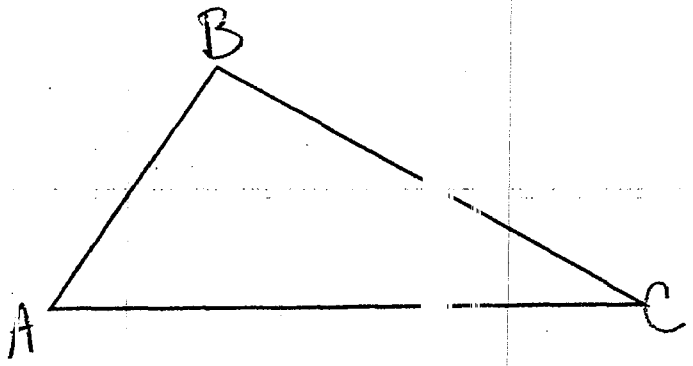
1. Construct Altitude BD



2. Construct Median BD

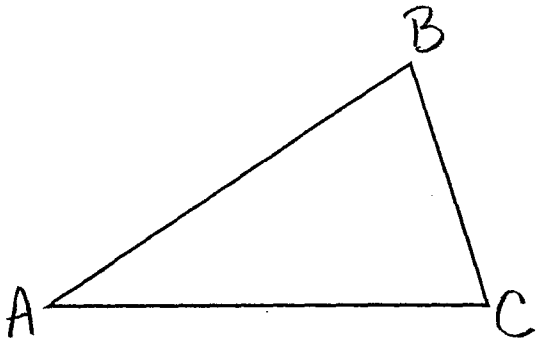


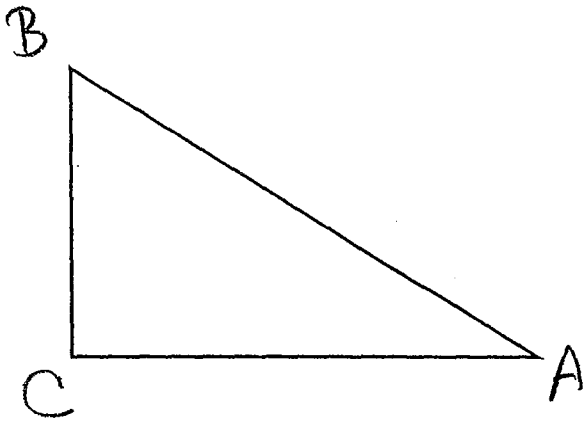
3. Construct Angle bisect r BD



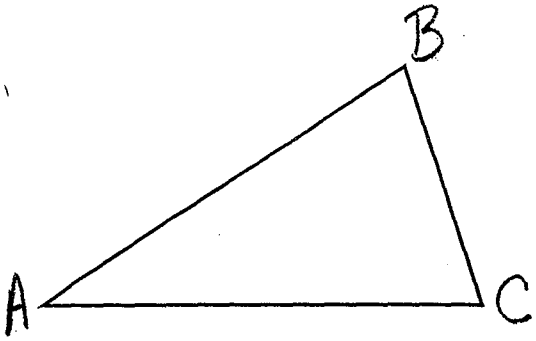
Constructing Altitudes, Medians, Angle Bisectors

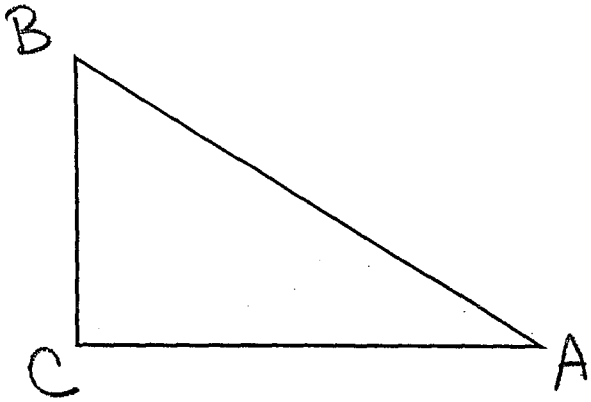
1. Construct Altitude BD, AE, + CF (orthocenter)



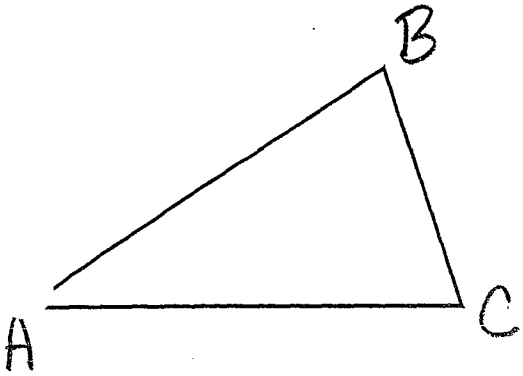


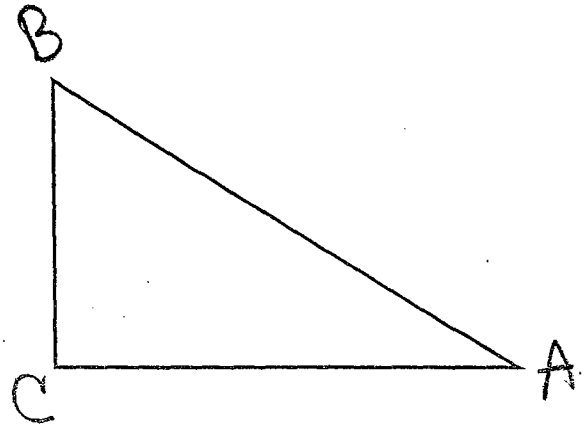
2. Construct Median BD, AE, + CF (centroid)





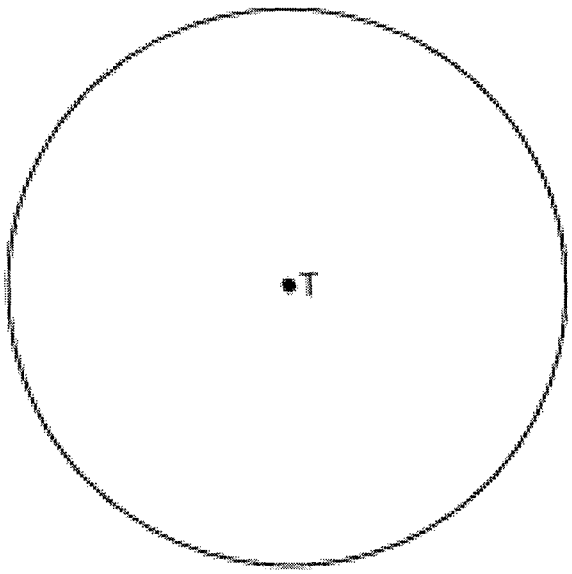
3. Construct Angle bisector BD, AE, + CF (incenter)



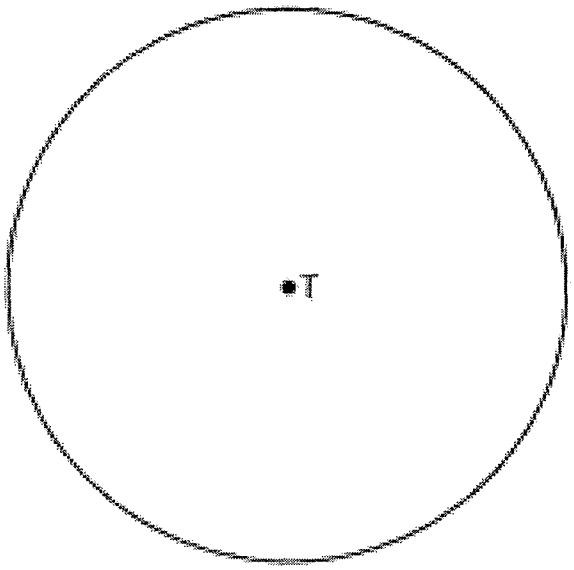


Special Constructions:

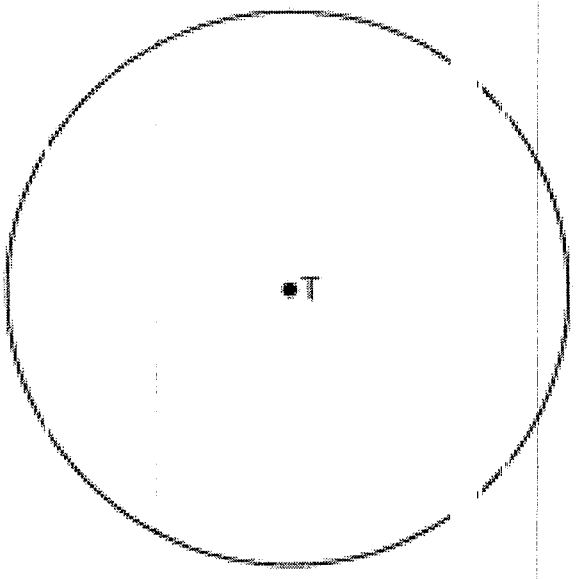
Construct a hexagon inscribed in circle T shown below. [Leave all construction marks.]



Construct an equilateral triangle inscribed in circle T shown below. [Leave all construction marks.]



Use a compass and straightedge construct an inscribed square in circle T shown below. [Leave all construction marks.]



Aim: What does the word "CONCURRENT" mean?

Concurrent – lines that intersect at one and only one point

How do we apply the word **CONCURRENT** with respect to constructions of a triangle?

Orthocenter – is the point where the ***altitudes*** of a triangle intersect

Incenter – is the point where the ***angle bisectors*** of a triangle intersect

Centroid – is the point where the ***medians*** of a triangle intersect

Circumcenter – is the point where the ***perpendicular bisectors*** of a triangle intersect

How are we going to remember this?

O, I, Cen, Ci – pronounced OH! EYE! Cen! See!

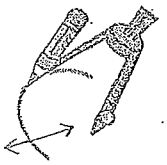
Please alphabetize the following words: angle bisectors, altitudes, perpendicular bisectors and medians.

When they are alphabetized, then you have the order of O. I. Cen. Ci.

Please write it out on the other side of this page and see how it works!

Name _____ _____ Date _____

G ometry Vocabulary

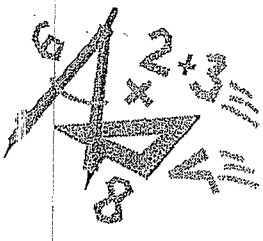


- An _____ f a triangle is a line segment drawn from a vertex perpendicular to and ending in he line that contains the opposite side.

- A _____ f a triangle is a segment that joins a vertex to the midpoint of the opposite side

- An _____ _____ of a triangle is a segment that bisects any angle and termin es in the side opposite that angle.

- The _____ _____ of a line segment is a line, line segment, or ray that is p pendicular to the segment at its midpoint.



- The altitudes of a triangle a _____, that is, they intersect at one point. This point is calle the _____.

- The medians of a triangle ar concurrent at the _____. The medians are then divided in o _____ ratio.

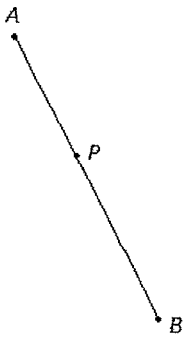
- The angle bisectors of a tri gle are concurrent at the _____ which is _____ _____ from all three sides of the triangle.

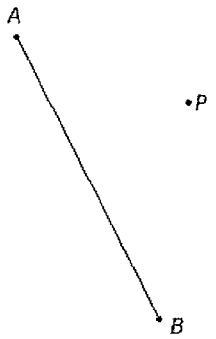
- The perpendicular bisector of a triangle are concurrent at the _____ _____ which is equidistant from all three _____ of he triangle.

Name _____ Date _____

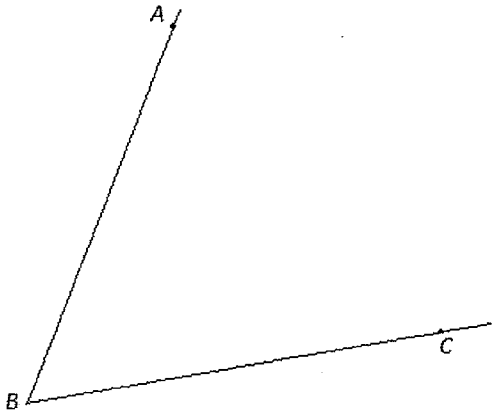
— Homework —

1. For each of the following, construct a line perpendicular to segment AB that goes through point P.

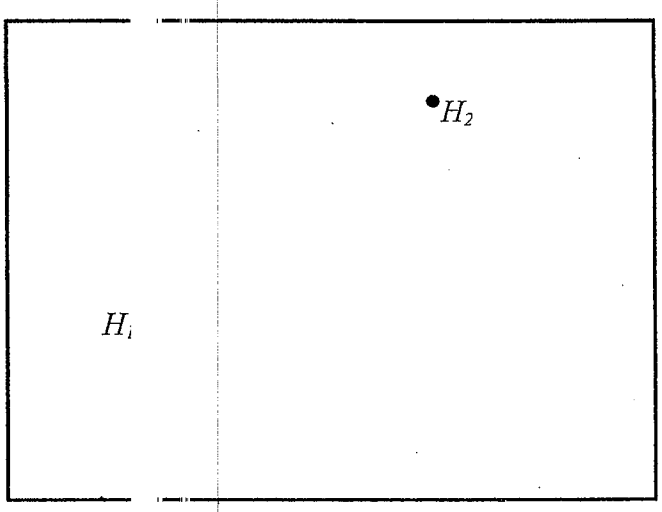




2. Using a compass and straightedge, construct the angle bisector of ∠ABC shown below. What is true about every point that lies on the ray you created?



3. Two homes are built on a plot of land. Both homeowners have dogs, and are interested in putting up as much fencing as possible between their homes and the land, but in a way that keeps the fence equidistant from each home. Use your construction tools to determine where the fence should go on the plot of land.



4. *Directions:* Copy the angle below.