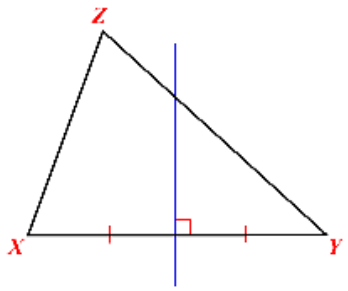
SEGMENTS IN TRIANGLES GRAPHIC ORGANIZER

Perpendicular Bisectors

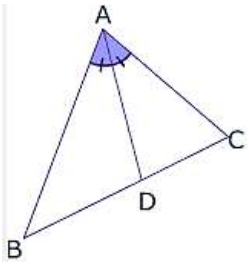
A triangle has three **perpendicular bisectors.** They pass through the midpoint on each side of a triangle at a 90° angle.

They are the ONLY type of segment in a triangle that does NOT have to extend from the vertex to the opposite side.



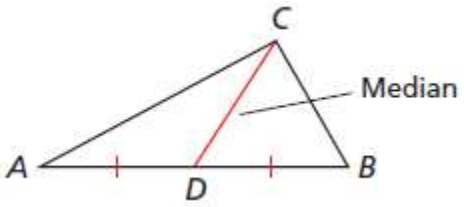
Angle Bisectors

A triangle has three **angle bisectors**. Angle bisectors divide an angle into two congruent angles. The bisector MUST extend from the vertex to the opposite side.



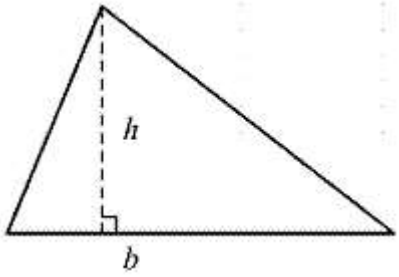
Medians

The **median** of a triangle is a segment whose endpoints are a vertex of the triangle and the midpoint of the opposite side.

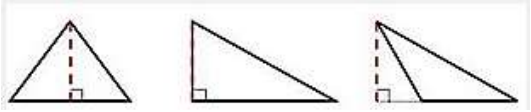


Altitudes

A triangle has three **altitudes.** An altitude is a perpendicular segment from the vertex to the line containing the opposite side.

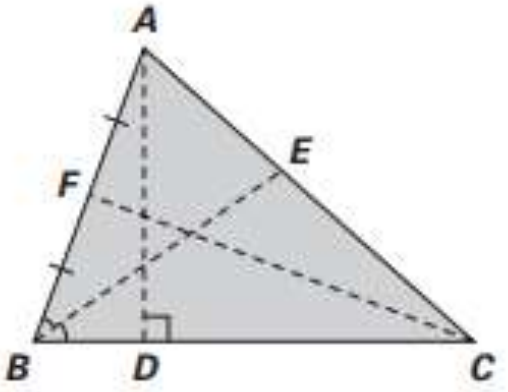


A triangle's altitude can be located in three locations (inside, on, or outside) the triangle.



Practice Problem (from notes):

Identify each dotted segment in the triangle as either a median, perpendicular bisector, altitude, or angle bisector. Then explain you assigned each name to the segment.



Solutions:

$\overline{AD}$ is an <u>altitude</u> because it extends from the vertex to the opposite side forming a right angle.

$\overline{BE}$ is an <u>angle bisector</u> because it extends from the vertex, cutting that angle in half to the opposite side.

$\overline{FC}$ is a <u>median</u> because it extends from the vertex to the opposite side and splits the side equally.