

Concurrency of the Altitudes

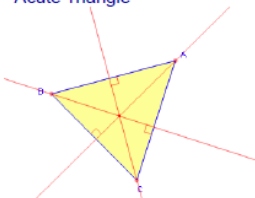
An *altitude* of a triangle is a line segment that is drawn from the vertex to the opposite side and is perpendicular to the side. There are three altitudes in a triangle.

The altitudes of a triangle, extended if necessary, are concurrent in a point called the **orthocenter** of the triangle.

Location of the Orthocenter

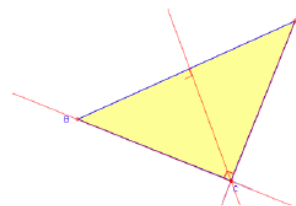
The orthocenter can fall in the interior of the triangle, on the side of the triangle, or in the exterior of the triangle.

Acute Triangle



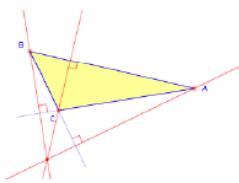
The orthocenter is located **inside** the triangle.

Right Triangle



The orthocenter is located **on** the right angle.

Obtuse Triangle



The orthocenter is located **outside** the triangle.