Points of Concurrency

1. The **circumcenter** is the point at which the three [perpendicular bisectors of the sides](http://www.geom.uiuc.edu/~demo5337/Group2/perpbisect1.html) of a triangle intersect. It is also the center of the circle circumscribed around a triangle. This circle passes through all three vertices of the triangle
2. The definition of the perpendicular bisector of a side of a triangle is a line segment that is both perpendicular to a side of a triangle and passes through its midpoint**.**



1. The **incenter** is the point at which the [angle bisectors](http://www.geom.uiuc.edu/~demo5337/Group2/anglebisect1.html) of a triangle intersect. It is the center of the circle that can be inscribed in the triangle
2. The definition of the angle bisector of a triangle is a line segment that bisects one of the vertex angles of a triangle.
3. In general, an angle bisector is equidistant from the sides of the angle when measured along a segment perpendicular to the sides of the angle.



1. The **centroid** is the point at which the [medians](http://www.geom.uiuc.edu/~demo5337/Group2/median1.html) of a triangle intersect. It is the center of gravity of the triangle**.**

a. The definition of the median of a triangle is a line segment that extends from one vertex of a triangle to the midpoint of the opposite side.



1. The **orthocenter** is the point at which the three [altitudes](http://www.geom.uiuc.edu/~demo5337/Group2/altitude1.html) of a triangle intersect.
2. The definition of the altitude of a triangle is a line that extends from one vertex of a triangle perpendicular to the opposite side.
3. Sometimes the opposite side isn't quite long enough to draw an altitude, so we are allowed to extend it to make an altitude possible.

