<name>
Class: Honors Geometry
Date: <date>
Topic: Lesson 5-3 (Concurrent Lines, Medians and Altitudes)

Definition	<u>Concurrent Lines</u> ≥ 3 lines that intersect @ 1 pt.
Definition	<u>Point of concurrency</u> Pt. that concurrent lines meet at.
Definition	<u>Median of a triangle</u> A segment whose endpts are a vertex & midpoint of opposite side.
Definition	<u>Altitude of a triangle</u> $\perp$ segment fm a vertex to the line containing the opposite side. May be inside, outside or on a leg.
Triangle centers	Points of concurrency of: 1. $\perp$ bisectors → **<u>circumcenter</u>** 2. $\angle$ bisectors → **<u>incenter</u>** 3. medians → **<u>centroid</u>** (center of "gravity") 4. altitudes → **<u>orthocenter</u>**
Triangle circles	1. circumcenter → circle is **<u>circumscribed</u>** touching the vertices 2. incenter → circle is **<u>inscribed</u>** touching the sides
Theorem 5-6	The $\perp$ bisectors of the sides of a Δ are concurrent at a pt equidistant fm the vertices.
Theorem 5-7	The $\angle$ bisectors of a Δ are concurrent at a pt equidistant fm the sides.
Theorem 5-8	The medians of a Δ are concurrent at a pt that is $\frac{2}{3}$ dist fm each vertex to the midpoint of the opposite side.
Theorem 5-9	The lines that contain the altitudes of a Δ are concurrent.