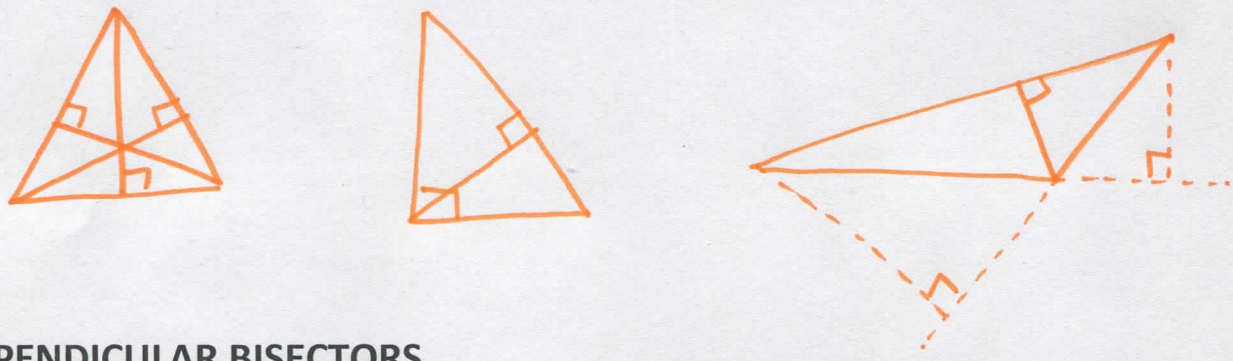



6.1 – 6.3 Special Segments in Triangles Day Five Notes & CYU

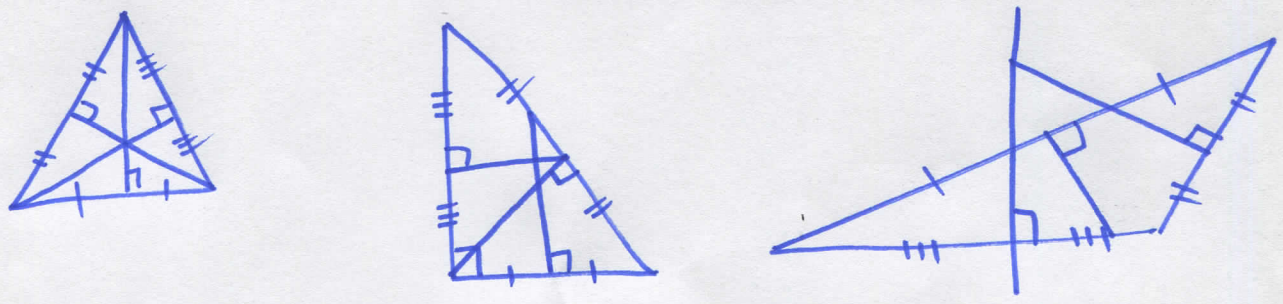
ALTITUDES

1. Define altitude of a triangle. Segment from vertex to opp. side \perp
2. How many altitudes can a triangle have? 3
3. What is the name of the point of intersections of the altitudes? orthocenter
4. Do they always intersect inside the triangle? no Why or why not?
acute: inside; Right: on; obtuse: outside
5. Draw an example of three triangles (acute, right, and obtuse) with all three altitudes.



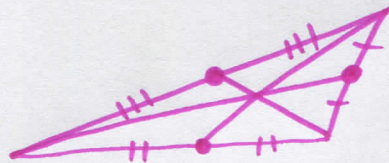
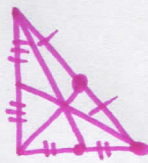
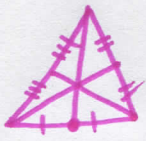
PERPENDICULAR BISECTORS

1. Describe how to draw a perpendicular bisector of a triangle. 2 arcs from the 2 segment end points connected at the mdpt to be \perp
2. How many perpendicular bisectors can a triangle have? 3
3. What is the name of the point of concurrency of the perpendicular bisectors? circumcenter
4. Do they always meet inside the triangle? no Why or why not? acute: inside; Right: on; obtuse: outside
5. Make a conjecture about the distance from the angles of the triangle to the point of intersection. equidistant from the vertices
Explain why this conjecture happens. circumscribed \odot \triangle ; = radii 
6. What is the significance of the point of intersection of the perpendicular bisectors? airport example
7. Draw an example of three triangles (acute, right, and obtuse) with all three angle bisectors.




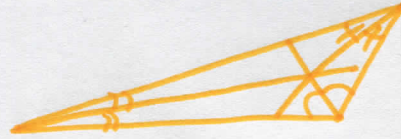
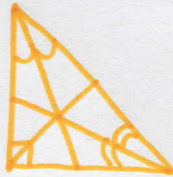
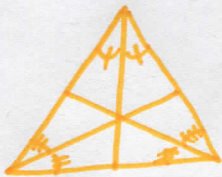
MEDIANS

1. What is a median of a triangle? segment from vertex to opp. sides mdpt.
2. How many medians can a triangle have? 3
3. What is the name of the point of intersection of the medians? centroid
4. Do they always meet inside the triangle? yes Why or Why not? balance point or center of gravity
5. Make a conjecture about the length of the segment from a vertex to the point of concurrency in relation to the entire length of the median. two-thirds the way
6. What is the significance of the point of concurrency of the medians? balance point
7. Draw an example of three triangles (acute, right and obtuse) with three medians.



ANGLE BISECTORS

1. Describe how to draw an angle bisector of a triangle. One arc on a side of $\Delta \Rightarrow$ 2 more arcs outside. Connect vertex to small arcs intersection to bisect the vertex \angle .
2. How many angle bisectors can a triangle have? 3
3. What is the name of the point of concurrency of the angle bisectors? incenter
4. Do they always meet inside the triangle? yes Why or why not? always in center of Δ .
5. Make a conjecture about the distance from the sides of the triangle to the point of intersection. equidistant from the sides
Explain why this conjecture happens. inscribed \odot $\&$ Δ ; = radii \rightarrow 
6. What is the significance of the point of intersection of the angle bisectors? equidistant to sides of Δ
7. Draw an example of three triangles (acute, right, and obtuse) with all three angle bisectors.



Write the saying used to help you remember the names of the points of concurrency:

An odd Peanut Butter Cup May Contain Apple Butter Instead

Now write what the saying stands for:

Altitude Orthocenter \perp Bisector Circumcenter Median Centroid \times Bisector Incenter