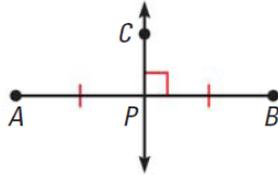
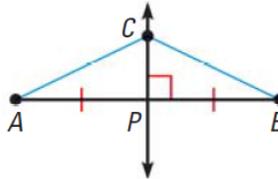


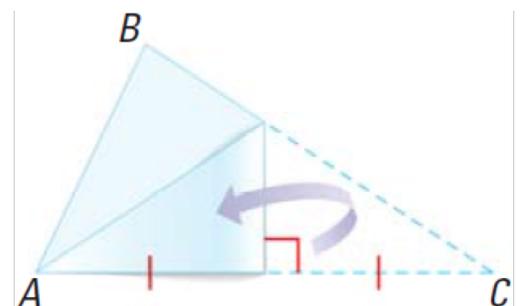
Analytic Geometry for College Graduates**Unit 1: Similarity, Congruency & Proofs****Topic:** Perpendicular Bisectors and the Circumcenter (MCC9-12.G.CO.9)**Check Out:** msgiwa1.weebly.com and twitter.com/msgiwa1 for help & updates**Perpendicular Bisector:** A segment, ray, line, or plane that is perpendicular to a segment at its midpoint. \overleftrightarrow{CP} is a \perp bisector of \overline{AB} .**Perpendicular Bisector Theorem:** In a plane, if a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.If \overleftrightarrow{CP} is the perpendicular bisector of \overline{AB} , then $\overline{CA} \cong \overline{CB}$.**Proof:**

Statement:	Reason:
1) \overline{BD} bisects \overline{AC}	1) Given
2) $\overline{BD} \perp \overline{AC}$	2) Given.
3) $\overline{AP} \cong \overline{BP}$	3) Definition of a Bisector.
4) $\angle APC$ and $\angle BPC$ are right angles	4) Definition of a Perpendicular.
5) $m\angle APC \cong m\angle BPC$	5) All right angles are \cong .
6) $\overline{CP} \cong \overline{CP}$	6) _____ Property
7) $\triangle APC \cong \triangle BPC$	7) _____ Postulate
8) $\overline{CA} \cong \overline{CB}$	8) _____
9) $\triangle ACB$ is isosceles	9) _____

Concurrency: When three or more lines, rays, or segments intersect in the same point, they are called concurrent lines, rays, or segments. The point of intersection of the lines, rays, or segments is called the point of concurrency.The perpendicular bisectors of a triangle intersect at a point called the circumcenter. It has a special property that is very applicable to real world situations. Let's find out what it is with the following construction.

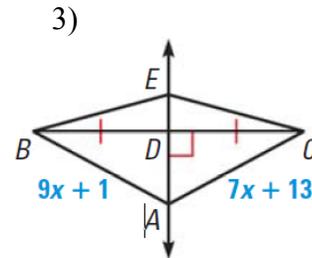
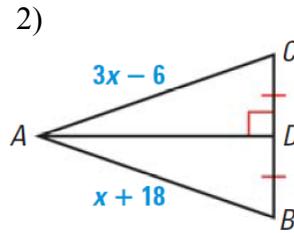
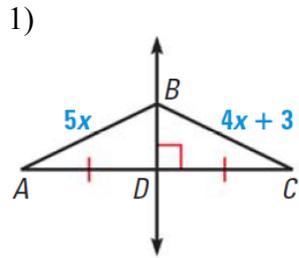
Fold your triangle to form the perpendicular bisectors of all 3 sides.

Do the three bisectors intersect at the same point?



Can you figure out its special property?

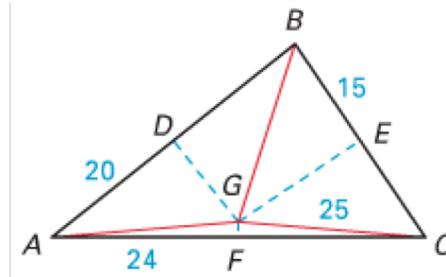
Practice Problems:
Find the length of \overline{AB} .



In the diagram, the perpendicular bisectors of $\triangle ABC$ meet at point G and are shown as dashed lines. Find the indicated measure.

- 4) AG _____
- 6) CF _____
- 8) CE _____

- 5) BD _____
- 7) BG _____
- 9) AC _____



Find the value of x .

