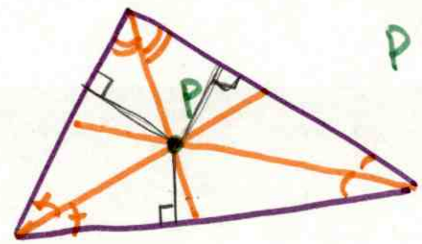
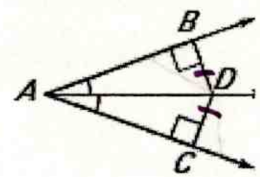
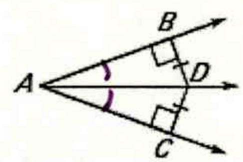
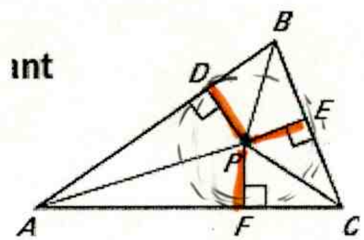
Section 5.3 Date

Use Angle Bisectors of a Triangle

Vocabulary	Definition	Example
INCENTER	The point of concurrency of the three angle bisectors of a triangle is called the incenter of the triangle.	 P is the incenter
ANGLE BISECTOR THEOREM	If a point is on the bisector of an angle, then it is equidistant from the two sides of the angle. * must be $\perp$ to the sides	If $\overrightarrow{AD}$ bisects $\angle BAC$ and $\overline{DB} \perp \overrightarrow{AB}$ and $\overline{DC} \perp \overrightarrow{AC}$, then $DB =$ DC. 
CONVERSE of ANGLE BISECTOR THEOREM	If a point is in the interior of an angle and is equidistant from the sides of the angle, then it lies on the bisector of the angle. + $\perp$	If $\overline{DB} \perp \overrightarrow{AB}$ and $\overline{DC} \perp \overrightarrow{AC}$ and $DB = DC$, then $\overrightarrow{AD}$ bisects $\angle BAC$. 
CONCURRENCY of ANGLE BISECTORS of a TRIANGLE	incenter The angle bisectors of a triangle intersect at a point that is equidistant from the sides of the triangle. must be $\perp$	If $\overline{AP}$, $\overline{BP}$, and $\overline{CP}$ are angle bisectors of $\triangle ABC$, then $PD =$ PE $=$ PF. ınt  * will use $c^2 = a^2 + b^2$