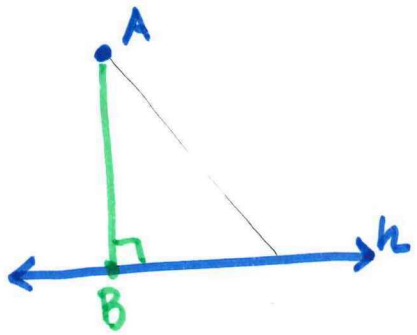
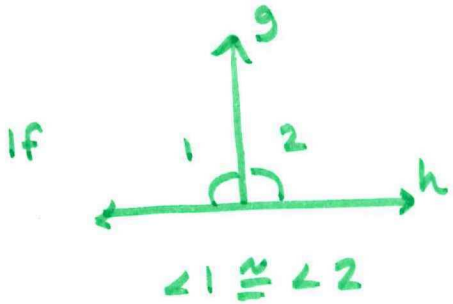
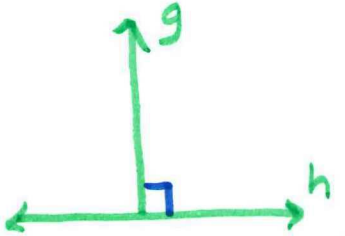
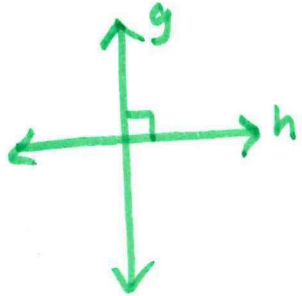
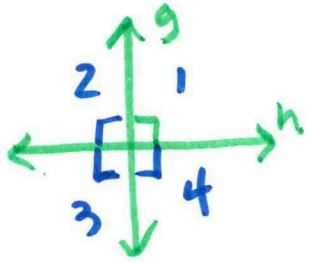
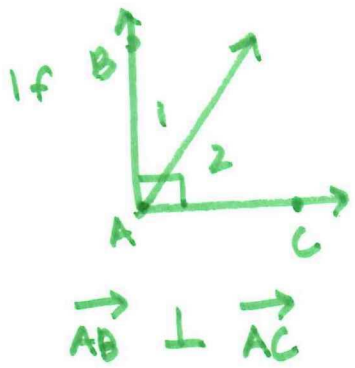
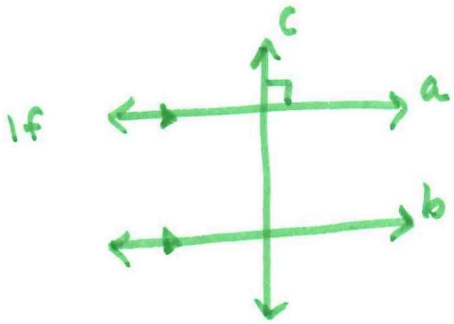
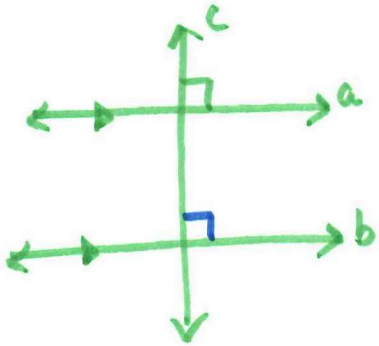
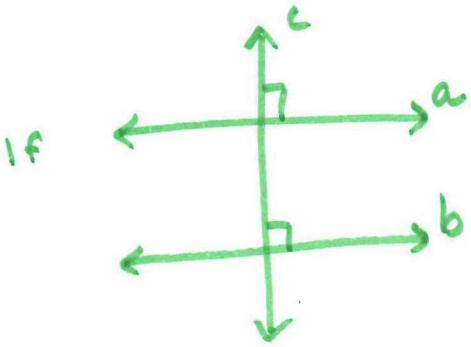
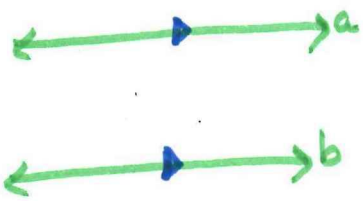
Section 3.6 Date_____

Prove Theorems about Perpendicular Lines

Vocabulary	Definition	Example
DISTANCE FROM a POINT to a LINE	The distance from a point to a line is the length of the perpendicular segment from the point to the line. This perpendicular segment is the shortest distance from the point to the line.	 If $\overline{AB}$ is $\perp$ to line h, then AB is the distance from point A to line h.
THEOREM 3.8	If two lines intersect to form a linear pair of congruent angles, then the lines are perpendicular.	If  $\angle 1 \cong \angle 2$, then  $g \perp h$.
THEOREM 3.9	If two lines are perpendicular, then they intersect to form four right angles.	If  $g \perp h$ then  $\angle 1, \angle 2, \angle 3$, and $\angle 4$ are right angles.

THEOREM 3.10	If two sides of two adjacent acute angles are perpendicular, then the angles are <u>complementary</u>.	If  $\overrightarrow{AB} \perp \overrightarrow{AC}$, then $\angle 1$ and $\angle 2$ are complementary.
THEOREM 3.11 PERPENDICUALR TRANSVERSAL THEOREM	If a transversal is perpendicular to one of two parallel lines, then it is <u>perpendicular</u> to the other.	If  $a \parallel b$ and $c \perp a$, then  $c \perp b$ by CA
THEOREM 3.12 LINES PERPENDICUALR TRANSVERSAL THEOREM	In a plane, if two lines are perpendicular to the same line, then they are <u>parallel</u> to each other.	If  $a \perp c$ and $b \perp c$, then  $a \parallel b$ by CCA