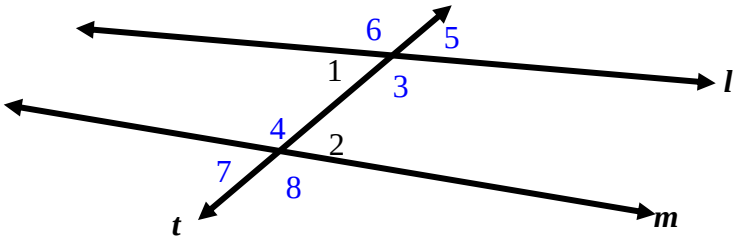
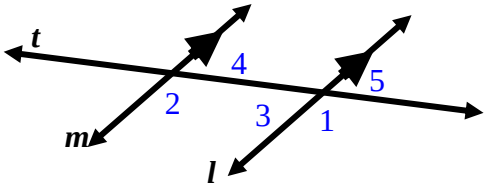
<name>
Class: Honors Geometry
Date: 9/14/06
Topic: Lesson 3-1 (Properties of Parallel Lines)

Transversal line	Line that intersects 2 coplanar lines @ 2 distinct pts 
Interior $\angle$'s	$\angle$'s formed by transversal btwn 2 lines: $\angle 1, \angle 2, \angle 3 \& \angle 4$
Exterior $\angle$'s	$\angle$'s formed by transversal outside 2 lines: $\angle 5, \angle 6, \angle 7 \& \angle 8$
Alternate int $\angle$'s	Int $\angle$'s that lie on opposite sides of traversal: $\angle 1 \& \angle 2$ and $\angle 3 \& \angle 4$
Same-side int $\angle$'s	Int $\angle$'s that lie on same side of traversal $\angle 1 \& \angle 4$ and $\angle 2 \& \angle 3$
Corresponding $\angle$'s	$\angle$'s on same side of traversal and of the 2 lines: $\angle 1 \& \angle 7$, $\angle 6 \& \angle 4$, $\angle 5 \& \angle 2$, and $\angle 3 \& \angle 8$
Parallel lines	2/more lines parallel iff coplanar & not intersect (review)
Postulate 3-1	<u>Corresponding Angles Postulate</u> If 2 parallel lines cut by transversal, corresponding $\angle$'s are $\cong$
Conjecture	If 2 parallel lines cut by transversal, alt int $\angle$'s are $\cong$.
Proof	Given: $l \parallel m$ Prove: $\angle 3 \cong \angle 4$  Proof: $l \parallel m$ Given $\angle 3 \cong \angle 5$ Vertical $\angle$'s are congruent (Thm 2-1)

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	$\angle 5 \cong \angle 4$ Corresponding $\angle' s$ congruent (Post 3-1) $\angle 3 \cong \angle 4$ Transitive property of congruence Q.E.D.
Theorem 3-1	<u>Alternate Interior Angles Theorem</u> If transversal intersects 2 parallel lines, alt int $\angle' s$ are $\cong$
Conjecture	If 2 parallel lines cut by transversal, same-side int $\angle' s$ supplm
Proof	Given: $\boldsymbol{l} \parallel \boldsymbol{m}$ $\angle 1 \& \angle 3$ are supplementary (sum of measures is 180) $\angle 1 \& \angle 2$ are corresponding angles (are congruent) Prove: $\angle 2 \& \angle 3$ are supplementary Proof: $\boldsymbol{l} \parallel \boldsymbol{m}$ — Given $m\angle 1 + m\angle 3 = 180$ — $\angle$ Add Post (supplm $\angle' s$) $m\angle 1 = m\angle 2$ — Corr $\angle' s$ are $\cong$ (Post 3-1) $m\angle 2 + m\angle 3 = 180$ — Substitution POE $\angle 2 \& \angle 3$ are supplm — Defn supplementary angles Q.E.D.
Theorem 3-2	<u>Same-Side Interior Angles Theorem</u> If transversal intersects 2 parallel lines, same-side int $\angle' s$ are supplementary
Example	Pg 118 Example 4 and Check Understanding 4 <optional, notes as needed>
Example	Pg 118 Example 5 <optional, notes as needed>
Example	Pg 118 Check Understanding 5 <optional, notes as needed>