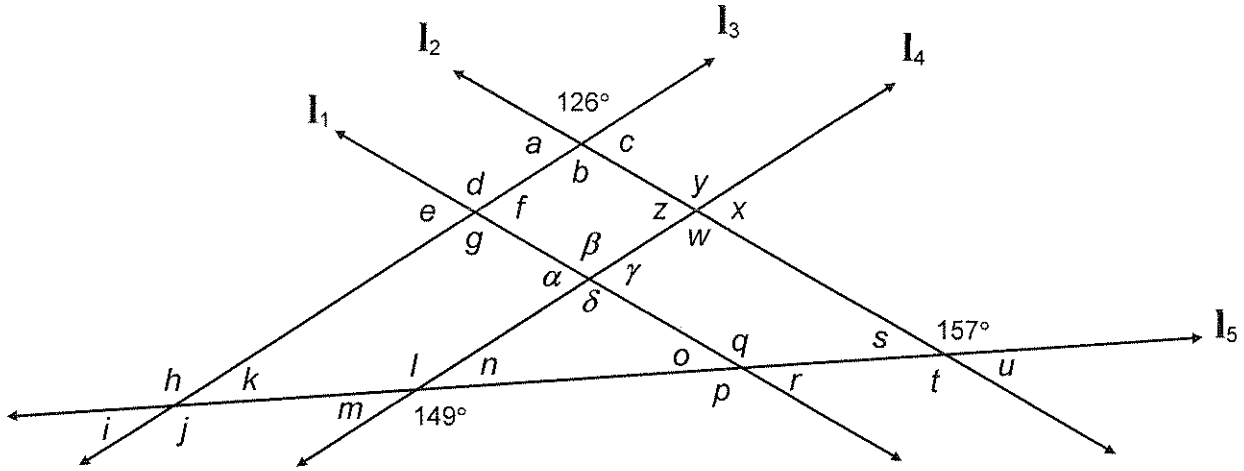
Lesson 2.6: Parallel Lines
Proofs Worksheet

Honors Geometry
Mr. Ferwerda

Name:_____

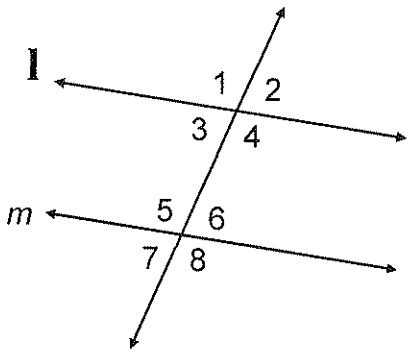
1. Without using a protractor, find the measures of all the lettered angles. [Given: $l_1 // l_2$; $l_3 // l_4$]



In problems 2 – 6, write complete proofs.

2. Prove the ***Alternate Exterior Angles Theorem***:

If 2 parallel lines are cut by a transversal, then the alternate exterior angles are congruent.



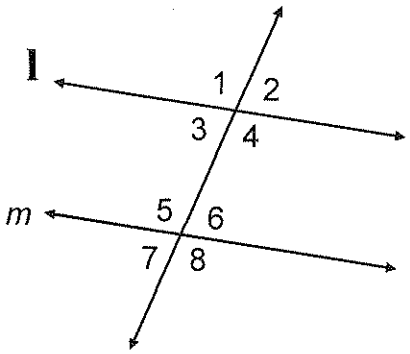
Given: $l // m$

Prove: $\angle 2 \cong \angle 7$

Conclusions	Justifications

3. Prove the ***Same Side Exterior Angles Theorem***:

If 2 parallel lines are cut by a transversal, then the same side exterior angles are supplementary.



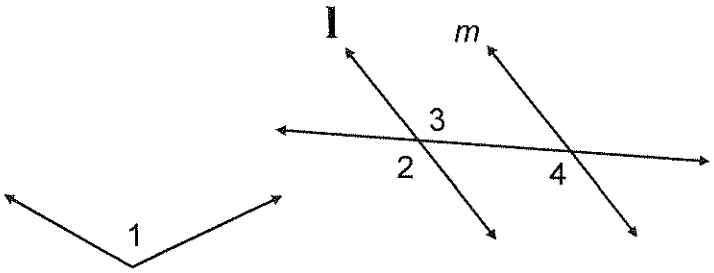
Given: $l \parallel m$

Prove: $\angle 1$ and $\angle 7$ are supplementary

Conclusions	Justifications

4. Given: $\angle 1 \cong \angle 2$
$\angle 1 \cong \angle 4$

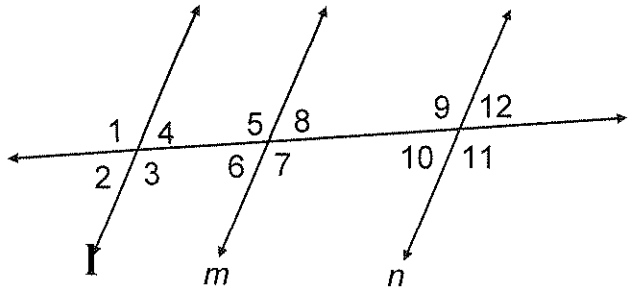
Prove: $l \parallel m$



Conclusions	Justifications

5. Given: $l \parallel m$; $m \parallel n$

Prove: $\angle 4 \cong \angle 10$

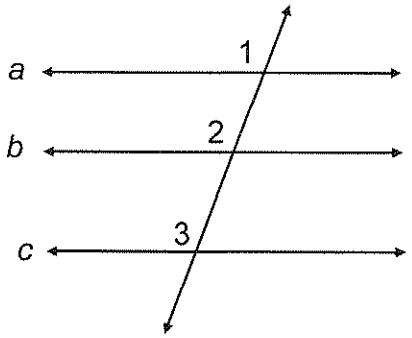


Conclusions	Justifications

6. Prove the ***Transitivity of Parallels Theorem***:

If 2 lines are parallel to the same line, then those lines are parallel to each other.

[Hint: use the numbered angles!]



Given: $a \parallel b$; $b \parallel c$

Prove: $a \parallel c$

Conclusions	Justifications