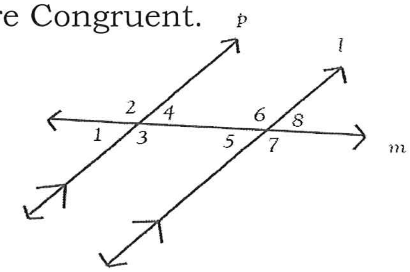
Name: Key

Proving Angle Relationships: Notes

Use Alternate Exterior Angles to prove **Alternate Interior Angles** are Congruent.

Given: $p // l$ *and m is a transversal of p and l*

Prove: $< 4 \cong < 5$

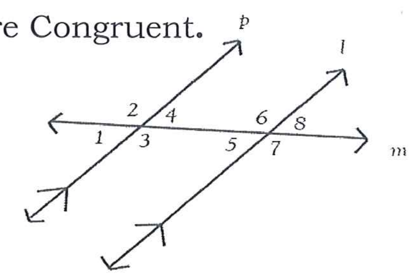


1. $p // l$ *and m is a transversal of p and l*	1. given
2. $< 1 \cong < 8$	2. alt. ext. <s are ≅
3. $< 1 \cong < 4, < 8 \cong < 5$	3. vertical <s are ≅
4. $<4 \cong <8$	4. Substitution
5. $<4 \cong <5$	5. substitution (or transitive)

Use Alternate Exterior Angles to prove **Corresponding Angles** are Congruent.

Given: $p // l$ *and m is a transversal of p and l*

Prove: $< 2 \cong < 6$

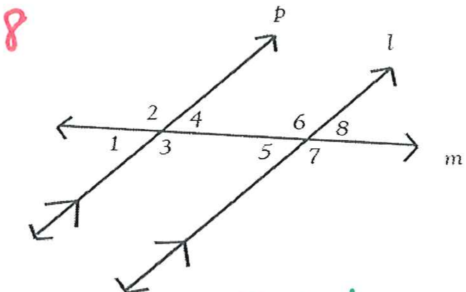


1. $p // l$ *and m is a transversal of p and l*	1. given
2. $< 2 \cong < 7$	2. alt. ext. <s are ≅
3. $< 7 \cong < 6$	3. vertical <s are ≅
4. $<2 \cong <6$	4. substitution (or transitive)

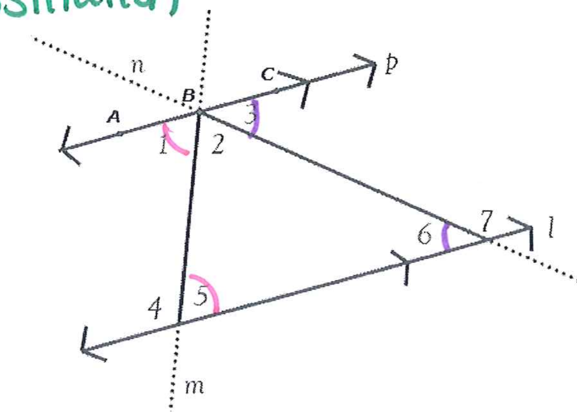
Prove **Consecutive Interior Angles** are supplementary.

Given: $p // l$ *and m is a transversal of p and l*, $\angle 1 \cong \angle 8$

Prove: < 3 *and* < 5 *are supplementary*



Statements	Reasons
1. $p // l$ + m is a transversal of p and l; $\angle 1 \cong \angle 8$	1. given
2. $\angle 1 + \angle 3 = 180$	2. linear pairs are suppl.
3. $\angle 8 \cong \angle 5$	3. vertical $\angle$s are $\cong$
4. $\angle 8 + \angle 3 = 180$	4. substitution
5. $\angle 5 + \angle 3 = 180$	5. substitution



Prove the **Triangle Sum Theorem**

Given: $p // l$ *and m is a transversal of p and l*

Prove: $m < 5 + m < 2 + m < 6 = 180$

Statements	Reasons
1. $p // l$; m is a transversal of p + l	1. given
2. $\angle 1 + \angle 2 + \angle 3 = 180$	2. def. of straight angle (with angle addition)
3. $\angle 1 \cong \angle 5$; $\angle 3 \cong \angle 6$	3. alt. int. $\angle$s are $\cong$
4. $\angle 5 + \angle 2 + \angle 6 = 180$	4. substitution