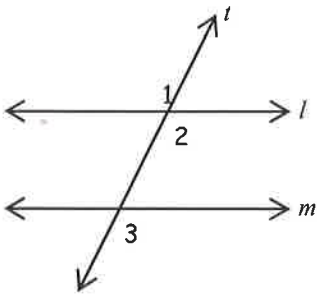


Proof #1

Proof of Alternate Exterior Angles congruent:

Given: $l \parallel m$

Prove: $\angle 1 \cong \angle 3$



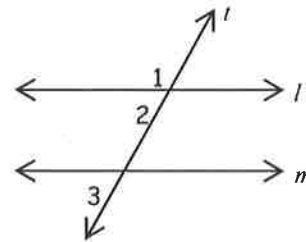
Statements	Reasons
1. $l \parallel m$	1. Given
2. $\angle 1 \cong \angle 2$	2. Vertical Angles are Congruent
3. $\angle 2 \cong \angle 3$	3. If lines are parallel, then corresponding angles are congruent.
4. $\angle 1 \cong \angle 3$	4. Substitution

Proof #2

Proof of Same-Side Exterior Angles supplementary:

Given: $l \parallel m$

Prove: $\angle 1$ is supplementary to $\angle 3$

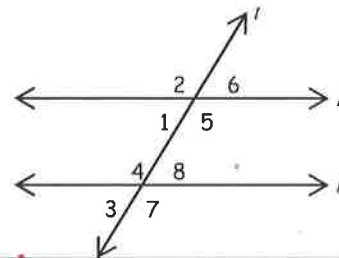


Statements	Reasons
1. $l \parallel m$	1. Given
2. $m\angle 1 + m\angle 2 = 180$	2. Angle Addition Postulate
3. $m\angle 2 = m\angle 3; \angle 2 \cong \angle 3$	3. If lines are parallel, then corresponding angles are congruent
4. $m\angle 1 + m\angle 3 = 180$	4. Substitution
5. $\angle 1$ is supplementary to $\angle 3$	5. Definition of Supplementary angles

Proof #3

Given: $k \parallel l$

Prove: $\angle 1$ is supplementary to $\angle 7$

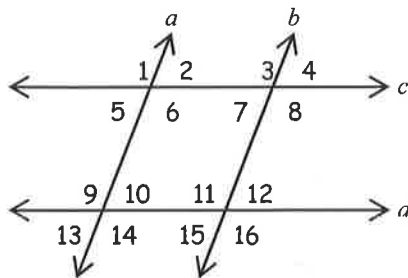


Statements	Reasons
1. $k \parallel l$	1. Given
2. $\angle 1 \cong \angle 8; m\angle 1 = m\angle 8$	2. If lines are parallel, then alternate interior angles are congruent.
3. $m\angle 7 + m\angle 8 = 180$	3. Angle Addition Postulate
4. $m\angle 7 + m\angle 1 = 180$	4. Substitution
5. $\angle 1$ is supplementary to $\angle 7$	5. Definition of Supplementary Angles

Proof #4

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

Prove: $\angle 6 \cong \angle 11$

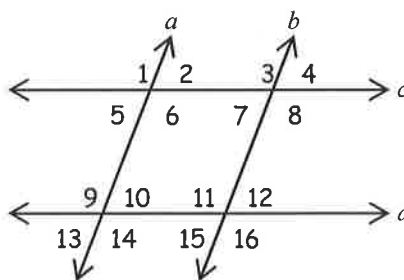


Statements	Reasons
1. $a \parallel b$	1. <u>Given</u>
2. $\angle 6 \cong \angle 8$	2. <u>If two lines are parallel, then corresponding angles are congruent</u>
3. $a \parallel b$ $c \parallel d$	3. <u>Given</u>
4. $\angle 8 \cong \angle 11$	4. <u>If lines are parallel, then alternate interior angles are congruent.</u>
5. $\angle 6 \cong \angle 11$	5. <u>Substitution</u>

Proof #5

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

Prove: $\angle 4$ is supplementary to $\angle 9$



Statements	Reasons
1. $a \parallel b$	1. <u>Given</u>
2. $\angle 4 \cong \angle 7$	2. <u>Vertical Angles Theorem</u>
3. $\angle 7 \cong \angle 5$	3. <u>If two lines are parallel, then corresponding angles are congruent</u>
4. $\angle 4 \cong \angle 5; m\angle 4 = m\angle 5$	4. <u>Substitution</u>
5. $c \parallel d$	5. <u>Given</u>
6. $\angle 5$ and $\angle 9$ are supplementary	6. <u>If lines are parallel, then same side interior angles are supplementary</u>
7. $m\angle 5 + m\angle 9 = 180$	7. <u>Definition of supplementary angles</u>
8. $m\angle 4 + m\angle 9 = 180$	8. <u>Substitution</u>
9. $\angle 4$ is supplementary to $\angle 9$	9. <u>Definition of Supplementary Angles</u>