

Geometric Proofs

Standards 2i & 2j

Given: $\angle 1$ and $\angle 2$ are supplementary

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

$\angle 2$ and $\angle 3$ are supplementary

1) $\angle 1$ and $\angle 2$ are supplementary
 $\angle 2$ and $\angle 3$ are supplementary

2) $m\angle 1 + m\angle 2 = 180^\circ$
 $m\angle 2 + m\angle 3 = 180^\circ$

3) $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$

1) Given

2) Definition of
Supplementary Angles

3) Transitive Property

Transitive Property

If $a = b$ and $b = c$

then

$$a = c$$

The b 's are what make it transitive

Given: $\angle 1$ and $\angle 2$ are supplementary Prove: $\angle 1 \cong \angle 3$
 $\angle 2$ and $\angle 3$ are supplementary

1) $\angle 1$ and $\angle 2$ are supplementary
 $\angle 2$ and $\angle 3$ are supplementary

2) $m\angle 1 + m\angle 2 = 180^\circ$
 $m\angle 2 + m\angle 3 = 180^\circ$

3) $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$

4) $m\angle 2 = m\angle 2$

5) $m\angle 1 = m\angle 3$

6) $\angle 1 \cong \angle 3$

1) Given

2) Definition of
Supplementary Angles

3) Transitive Property

4) Reflexive Property of Eq.

5) Addition/Subtraction
Property

6) Definition of Congruent
Angles

Given: $\angle 1$ and $\angle 2$ are right angles

Prove: $\angle 1 \cong \angle 2$

1) $\angle 1$ and $\angle 2$ are right angles

2) $m\angle 1 = 90^\circ$, $m\angle 2 = 90^\circ$

3) $m\angle 1 = m\angle 2$

4) $\angle 1 \cong \angle 2$

1) Given

2) Definition of Right Angles

3) Transitive (or Substitution)

4) Definition of Congruent Angles