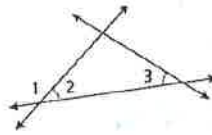


Additional Proofs Practice: Segments and Angles

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

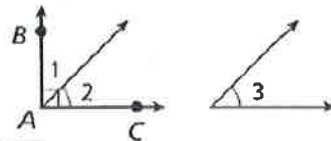


Statements	Reasons
1) $\angle 2 \cong \angle 3$	1) Given
2) $\angle 1$ and $\angle 2$ are a linear pair	2) def. of linear pair
3) $\angle 1$ & $\angle 2$ are suppl.	3) Supplement theorem
4) $m\angle 1 + m\angle 2 = 180$	4) def. of suppl.
5) $m\angle 1 + m\angle 3 = 180$	5) Substitution
6) $\angle 1$ and $\angle 3$ are Supp.	6) Suppl. thm. or def. of Supp.

Given: $\angle 1$ is supplementary to $\angle 2$, $\angle 3$ is supplementary to $\angle 4$, and $\angle 2 \cong \angle 4$
 Prove: $\angle 1 \cong \angle 3$

Statements	Reasons
1) $\angle 1$ & $\angle 2$ are supplementary $\angle 3$ & $\angle 4$ are supplementary	1) Given
2) $m\angle 1 + m\angle 2 = 180$ $m\angle 3 + m\angle 4 = 180$	2) def. of supplementary
3) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	3) Substitution/transitive
4) $\angle 2 \cong \angle 4$	4) Given
5) $m\angle 2 = m\angle 4$	5) def. of \cong
6) $m\angle 1 + m\angle 4 = m\angle 3 + m\angle 4$	6) substitution prop.
7) $m\angle 1 = m\angle 3$	7) subtraction prop.
8) $\angle 1 \cong \angle 3$	8) def. of \cong

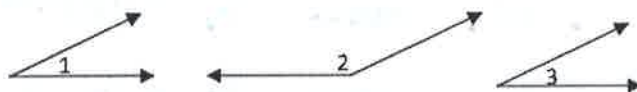
- 3) Given: $\angle BAC$ is a right angle. $\angle 2 \cong \angle 3$
 Prove: $\angle 1$ and $\angle 3$ are complementary.



Statements	Reasons
1) $\angle BAC$ is a right \angle	1) Given
2) $m\angle BAC = 90^\circ$	2) def. of rt. \angle
3) $m\angle 1 + m\angle 2 = m\angle BAC$	3) Angle Addition
4) $m\angle 1 + m\angle 2 = 90$	4) Substitution
5) $\angle 2 \cong \angle 3$	5) Given
6) $m\angle 2 = m\angle 3$	6) def. of \cong
7) $m\angle 1 + m\angle 3 = 90$	7) Substitution

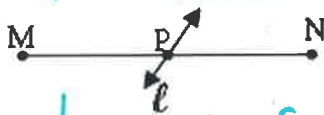
8) $\angle 1$ & $\angle 3$ are comp.
 def of comp \angle 's / comp thm.

- 4) Given: $\angle 1$ and $\angle 2$ are supplementary;
 $\angle 1 \cong \angle 3$
 Prove: $\angle 3$ and $\angle 2$ are supplementary



Statements	Reasons
1) $\angle 1$ & $\angle 2$ are Supp. $\angle 1 \cong \angle 3$	1) Given
2) $m\angle 1 + m\angle 2 = 180$	2) def. of supp.
3) $m\angle 1 = m\angle 3$	3) def. of \cong
4) $m\angle 3 + m\angle 2 = 180$	4) Substitution
5) $\angle 3$ and $\angle 2$ are supplementary	5) def. of Supp. or Supp. thm.

- 5) Given: ℓ bisects \overline{MN} at P
 Prove: $MP = PN$



Statements	Reasons
1) ℓ bisects \overline{MN} at P	1) Given
2) $\overline{MP} \cong \overline{PN}$	2) def. of bisector
3) $mp = PN$	3) def. of \cong