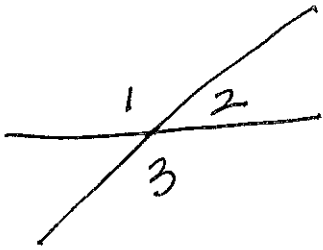


Congruent Supplement Theorem

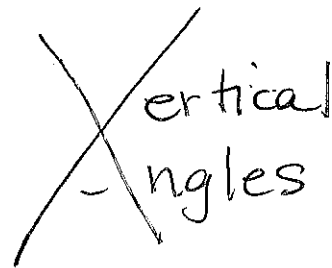
If 2 angles are supplementary to the same angle, Then they are congruent.

"2 \angle 's supp. same \angle , \cong "



$\angle 1$ & $\angle 2$ are supp. }
 $\angle 2$ & $\angle 3$ are supp. }
 $\angle 1$ & $\angle 3 \cong$

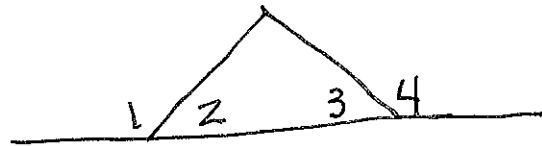
Vertical \angle 's are \cong .



Example Proof

Given: $\angle 1$ sup $\angle 2$
 $\angle 4$ is sup $\angle 3$
 $\angle 1 \cong \angle 4$

Prove: $\angle 2 \cong \angle 3$



Statement

- ① $\angle 1$ sup $\angle 2$
- ② $\angle 4$ sup $\angle 3$
- ③ $\angle 1 \cong \angle 4$
- ④ $\angle 4$ sup. $\angle 2$
- ⑤ $\angle 2 \cong \angle 3$

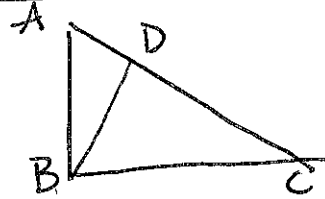
Reasons

- ① Given
- ② Given
- ③ Given
- ④ substitution
- ⑤ Cong. sup theorem.

Congruent Complimentary Theorem

If 2 \angle 's are complimentary to the same \angle , then they are \cong .

Given: $\angle A$ comp to $\angle C$
 $\angle DBC$ is comp to $\angle C$
 Prove: $\angle A \cong \angle DBC$
 statement



Reason.

- ① $\angle A$ comp $\angle C$
 $\angle DBC$ comp $\angle C$
- ② $\angle A \cong \angle DBC$

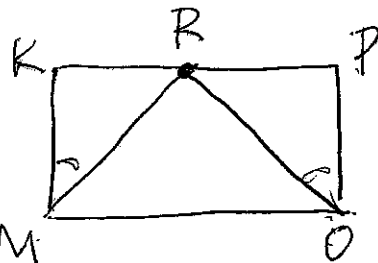
① Given

② Cong. comp. theorem
 (comp of same $\angle \cong$)

Proof:

Given: $\overline{KM} \perp \overline{MO}$
 $\angle KMR \cong \angle POR$
 $\overline{PO} \perp \overline{MO}$

Prove: $\angle ROM \cong \angle RMO$



- ① $\overline{KM} \perp \overline{MO}$ $\overline{PO} \perp \overline{MO}$
 $\angle KMR \cong \angle POR$

① Given

- ② $\angle KMO$ is Rt \angle
 $\angle POM$ is rt \angle

② Def. of \perp

- ③ $\angle KMR$ comp. to $\angle RMO$
 $\angle POR$ comp to $\angle ROM$

③ Def comp \angle 's.

- ④ $\angle KMR$ comp $\angle ROM$

④ Substitution

- ⑤ $\angle ROM \cong \angle RMO$

⑤ Cong. comp. Theorem.