2.6 Geometric Proofs

Writing Justifications

Write a justification for each step, given that $\angle A$ & $\angle B$ are complementary and $\angle A \cong \angle C$.

Statements	Justifications
1. $\angle A$ & $\angle B$ are comp.	1. Given
2. $m\angle A + m\angle B = 90$	2. Defn of comp. $\angle$'s
3. $\angle A \cong \angle C$	3. Given
4. $m\angle A = m\angle C$	4. Defn of $\cong$ $\angle$'s or sub.
5. $m\angle C = m\angle B$	5. Transitive property of $\cong$
6. $m\angle C + m\angle B = 90$	6. Substitution prop.
7. $\angle C$ & $\angle B$ are comp.	7. Defn of comp. $\angle$'s.

Theorems: statements that can be proven.

Linear Pair Theorem: if 2 ∠'s form a linear pair, then they are supplementary.

Congruent Supplements Theorem: If 2 ∠'s are supp. to the same ∠, then they are ≅.

Right ∠'s Theorem: All right are ≅.

Congruent Complements Theorem: If 2 ∠'s are comp. to the same ∠, then they are ≅.

Ex: Given: $\angle 1$ + $\angle 2$ form a linear pair.
Prove: $\angle 1$ + $\angle 2$ are supplementary.

Statements	justifications
1. $\angle 1$ + $\angle 2$ form a linear pair.	1. Given
2. $\angle 1$ + $\angle 2$ form a line	2. Defn. of a linear pair.
3. $\angle 1$ & $\angle 2$ add to 180	3. Defn. of a straight $\angle$
4. $m\angle 1 + m\angle 2 = 180$	4. $\angle$ addition postulate.
5. $\angle 1$ + $\angle 2$ are supp.	5. Defn. of supp. $\angle$'s.