2.8 Geometric Proofs Guided Notes **Geometry**

Steps for a Proof:

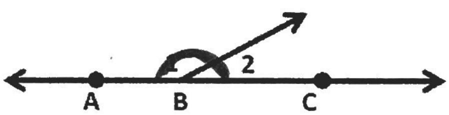
1) Take the first <u>given</u> statement and run it to a "dead-end".
2) Take the next <u>given</u> statement and run it to a "dead-end".
3) When you run out of <u>given</u> statements, look at the picture and determine what you can assume.
4) Look at the "dead-ends" together and see if you can identify what they have in <u>Common</u>.

- vertical ∠'s
- shared sides/∠'s

Given: ∠A and ∠B are complementary
∠A ≅ ∠C
Prove: ∠C and ∠B are complementary

Statement	Reason
1. ∠A & ∠B are complementary	1. Given
2. $m\angle A + m\angle B = 90°$	2. Def. of complementary ∠'s.
3. ∠A ≅ ∠C	3. Given
4. $m\angle A = m\angle C$	4. Def. of ≅
5. $m\angle C + m\angle B = 90°$	5. Substitution prop.
6. ∠C & ∠B are comp.	6. Def. of comp. ∠'s

Given: ∠1 and ∠2 form a linear pair.
Prove: ∠1 and ∠2 are supplementary.



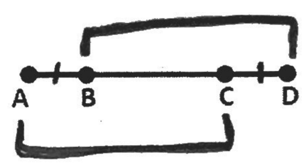
Statement	Reason
1. ∠1 & ∠2 form a linear pair	1. Given
2. ∠1 & ∠2 are supplementary	2. Linear pairs are supplementary. (Linear Pair Theorem)

<u>Linear Pair Theorem</u>: **If two angles form a linear pair, then they are supplementary.**

Given: $\angle 1$ and $\angle 2$ are right angles.
Prove: $\angle 1 \cong \angle 2$.

Statement	Reason
① $\angle 1$ & 2 are right $\angle$'s.	① Given
② $\angle 1 \cong \angle 2$	② All right $\angle$'s are $\cong$.

Given: $\overline{AC} \cong \overline{BD}$
Prove: $\overline{AB} \cong \overline{CD}$



Statement	Reason
① $\overline{AC} \cong \overline{BD}$	① Given
② $AC = BD$	② Def. of $\cong$
③ $AB + BC = AC$ $BC + CD = BD$	③ Segment Add post.
④ $AB + BC = BC + CD$	④ Substitution prop.
⑤ $AB = CD$	⑤ Subtract. prop.
⑥ $\overline{AB} \cong \overline{CD}$	⑥ Def. of $\cong$