Honors Geo.

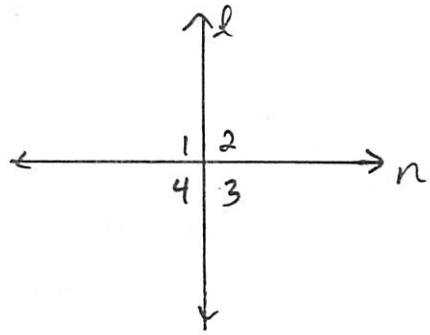
Sec 2-8: $\perp$ Lines (The Proofs)

Neef

2.11 Perpendicular adjacent Angles theorem

A. Given: $l \perp n$

Prove: $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$



Statements	Reasons
1. $l \perp n$	1. Given
2. $m\angle 1 = 90°$, $m\angle 2 = 90°$, $m\angle 3 = 90°$, $m\angle 4 = 90°$	2. DEF $\perp$ lines
3. $m\angle 1 = m\angle 2 = m\angle 3 = m\angle 4$	3. Substitution
4. $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$	4. Def $\cong$

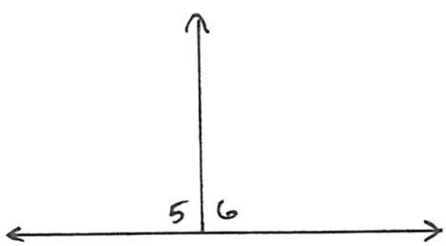
What did you just prove? If 2 lines are $\perp$ then they form $\cong$ adj angles

Congruent & Supplement = RT $\angle$ Theorem

2.12
2.13

B. Given: $\angle 5 \cong \angle 6$, $\angle 5$ & 6 linear pair

Prove: $\angle 5$ and $\angle 6$ are right angles



Statements	Reasons
1. $\angle 5 \cong \angle 6$	1. Given
2. $m\angle 5 = m\angle 6$	2. Def. $\cong$
3. $m\angle 5 + m\angle 6 = 180°$	3. Def. supp $\angle$'s
4. $m\angle 5 + m\angle 5 = 180°$	4. substitution
5. $2(m\angle 5) = 180°$	5. com. Like terms
6. $m\angle 5 = 90°$	6. Division =
7. $m\angle 6 = 90°$	7. substition
8. $\angle 5$ and $\angle 6$ are right angles	8. Def. RT $\angle$

What did you prove?

If 2 $\angle$'s are $\cong$ and a supplementary (Linear pair or non-adjacent supplementary) then they are Right $\angle$'s.