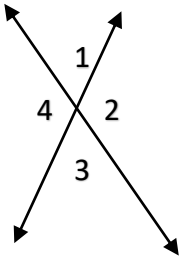
Proving Angles Hw Section 2.4

1. Prove the Vertical Angles Theorem



Given ∠1 and ∠2 form a linear pair
∠2 and ∠3 form a linear pair

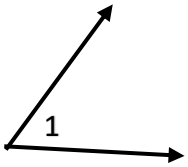
Prove ∠1 ≅ ∠3

Statement	Reason
a. ∠1 and ∠2 are linear pair ∠2 and ∠3 are linear pair	a. GIVEN
b. ∠1 and ∠2 are Supplementary ∠2 and ∠3 are Supplementary	b. Supplement Th'm
c. ∠1 ≅ ∠3	c. Two angles supplementary to the same angle are congruent
d.	d.

2. Prove congruence of angles is reflexive.

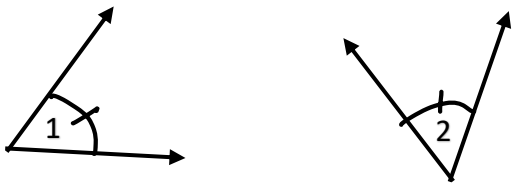
Given ∠1 is an angle.

Prove ∠1 ≅ ∠1



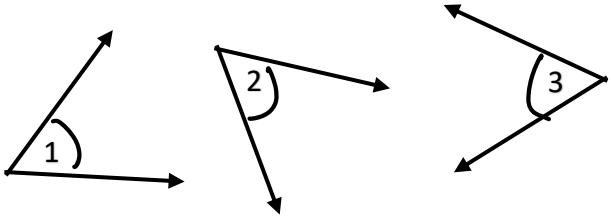
Statement	Reason
a. ∠1 is an angle	a. GIVEN
b. m∠1 = m∠1	b. Reflexive PoE for ℝ
c. ∠1 ≅ ∠1	c. Def'n of congruent angles
d.	d.
e.	e.

3. Prove congruence of angles is symmetric.
   Given $\angle 1 \cong \angle 2$
   Prove $\angle 2 \cong \angle 1$



Statement	Reason
a. $\angle 1 \cong \angle 2$	a. Given
b. $m\angle 1 = m\angle 2$	b. Def'n of congruent angles
c. $m\angle 2 = m\angle 1$	c. Symmetric PoE for $\mathbb{R}$
d. $\angle 2 \cong \angle 1$	d. Def'n of congruent angles
e.	e.

4. Prove congruence of angles is transitive.
   Given $\angle 1 \cong \angle 2$ and $\angle 2 \cong \angle 3$
   Prove $\angle 1 \cong \angle 3$



Statement	Reason
a. $\angle 1 \cong \angle 2$, $\angle 2 \cong \angle 3$	a. Given
b. $m\angle 1 = m\angle 2$, $m\angle 2 = m\angle 3$	b. Def'n of congruent angles
c. $m\angle 1 = m\angle 3$	c. Transitive PoE for $\mathbb{R}$
d. $\angle 1 \cong \angle 3$	d. Def'n of congruent angles
e.	e.