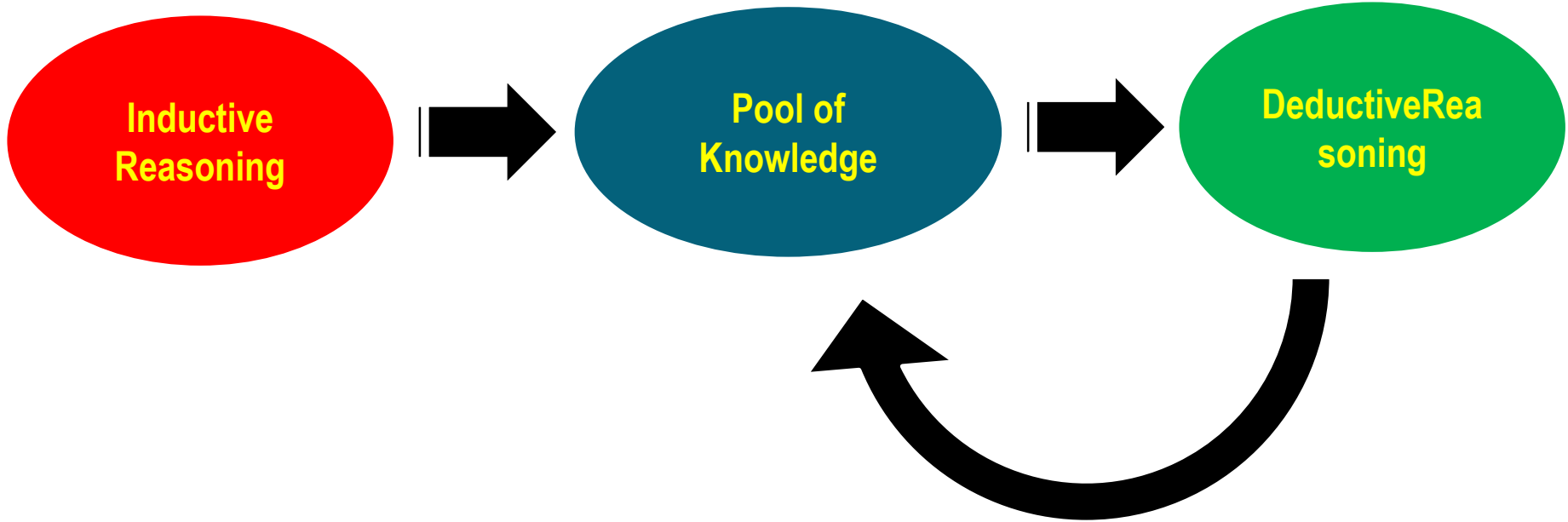
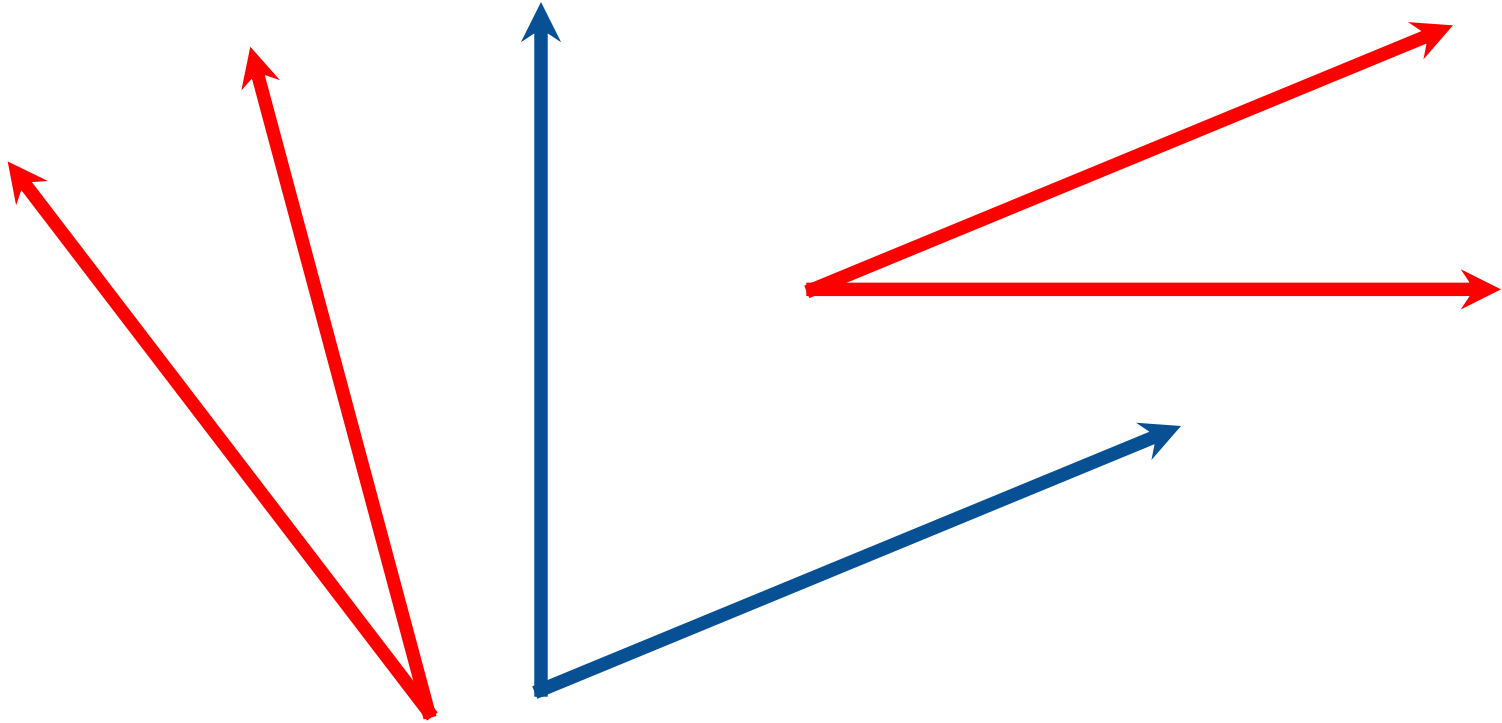


**2.5**

**Proofs About  
Angle Pairs and  
Segments  
(Day 2)**



**What would you conjecture is the relationship between two angles that are complements to the same angle?**

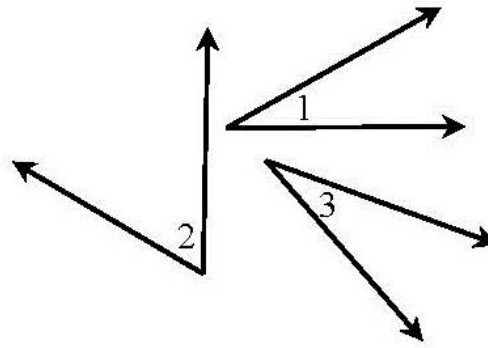


**Is this conjecture something we accept as true as a postulate?**

**Or can we prove it to be a theorem with previous knowledge?**

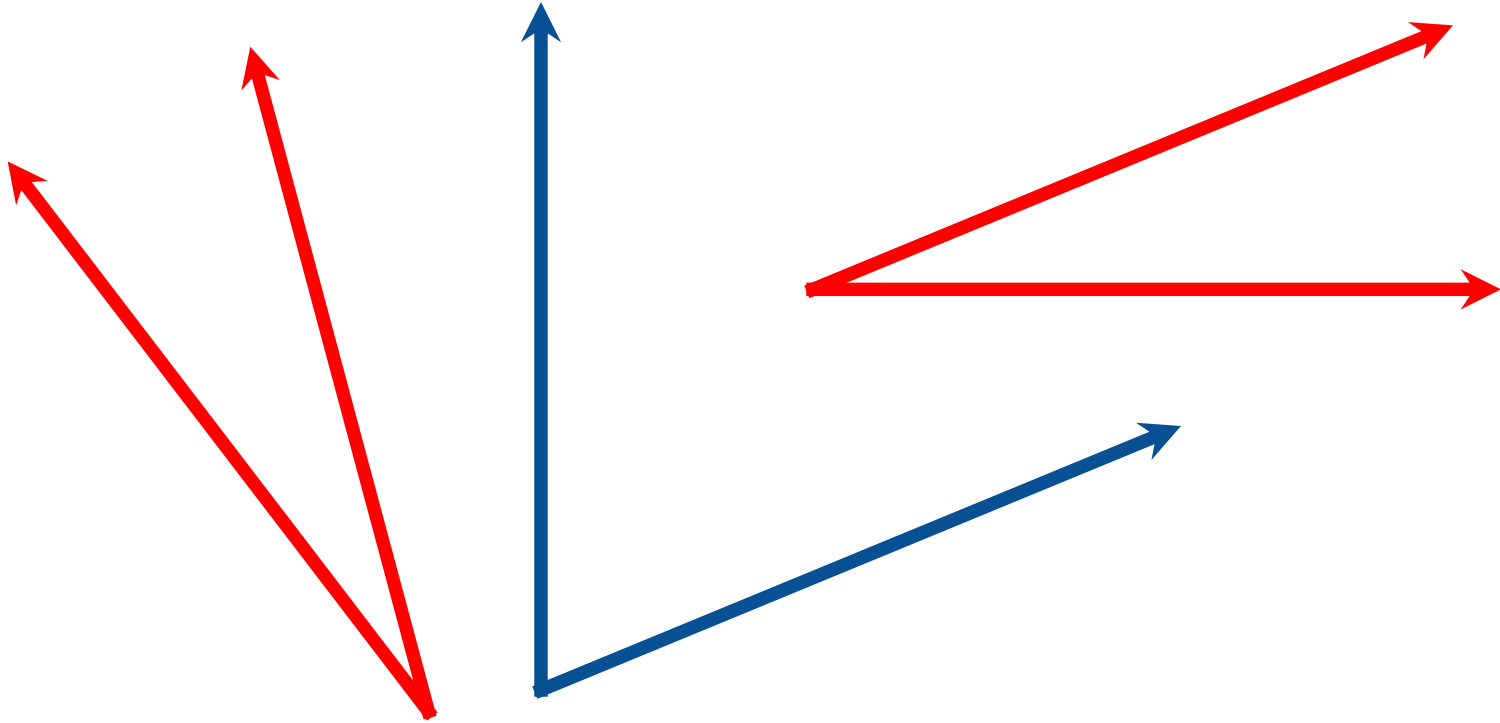
Given:  $\angle 1$  &  $\angle 2$  are complementary  
 $\angle 3$  &  $\angle 2$  are complementary

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



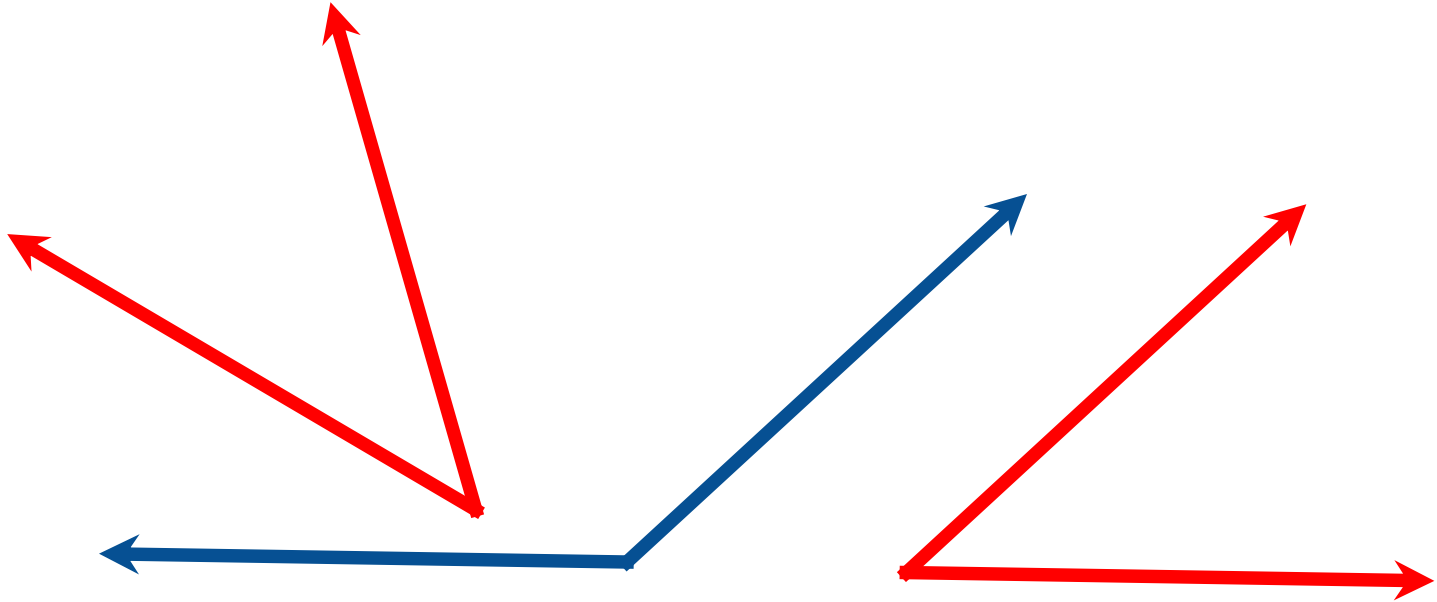
Statement	Reasons
1. $\angle 1$ & $\angle 2$ are complementary $\angle 3$ & $\angle 2$ are complementary	
2. $m\angle 1 + m\angle 2 = 90$ $m\angle 3 + m\angle 2 = 90$	
3. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	
4. $m\angle 1 = m\angle 3$	
5. $\therefore \angle 1 \cong \angle 3$	

# Congruent Complements Theorem



If two angles are \_\_\_\_\_ to the \_\_\_\_\_,  
then they are congruent.

**What would you conjecture is the relationship between two angles that are supplements to the same angle?**

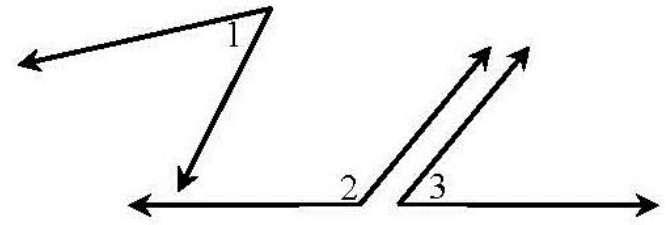


**Is this conjecture something we accept as true as a postulate?**

**Or can we prove it to be a theorem with previous knowledge?**

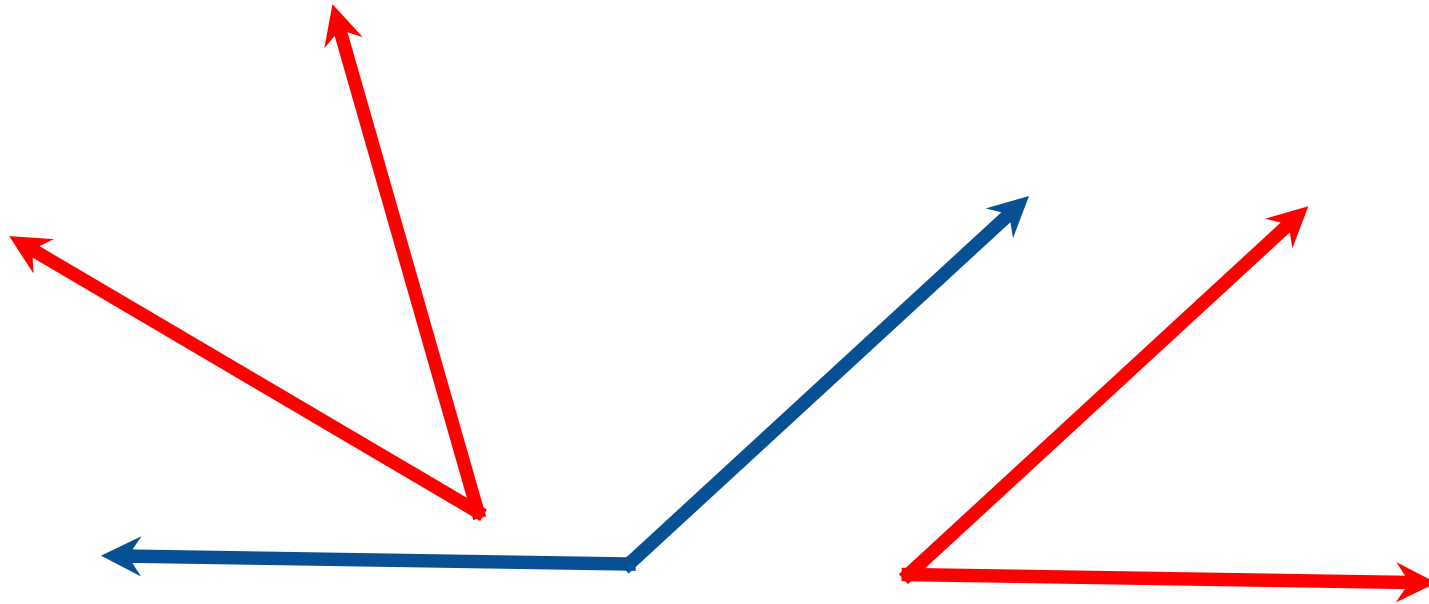
Given:  $\angle 1$  &  $\angle 2$  are supplementary  
 $\angle 3$  &  $\angle 2$  are supplementary

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



Statement	Reasons
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

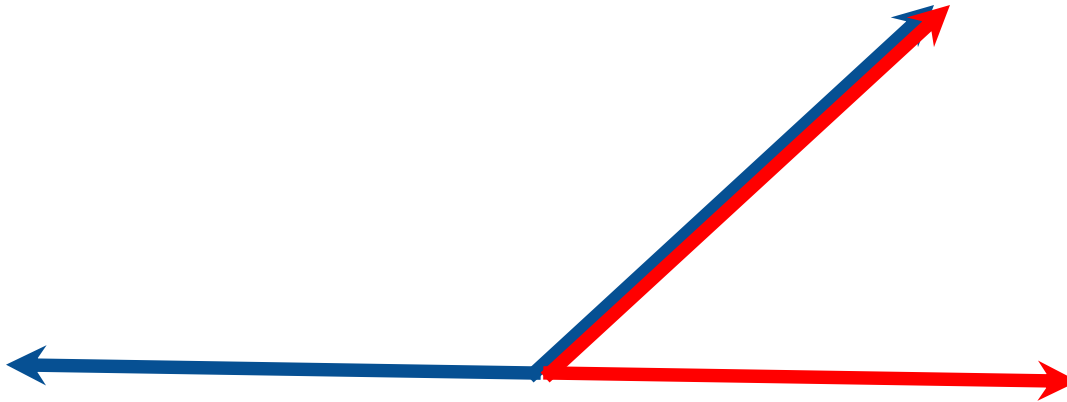
# Congruent Supplements Theorem



If two angles are \_\_\_\_\_ to the \_\_\_\_\_,  
then they are congruent.



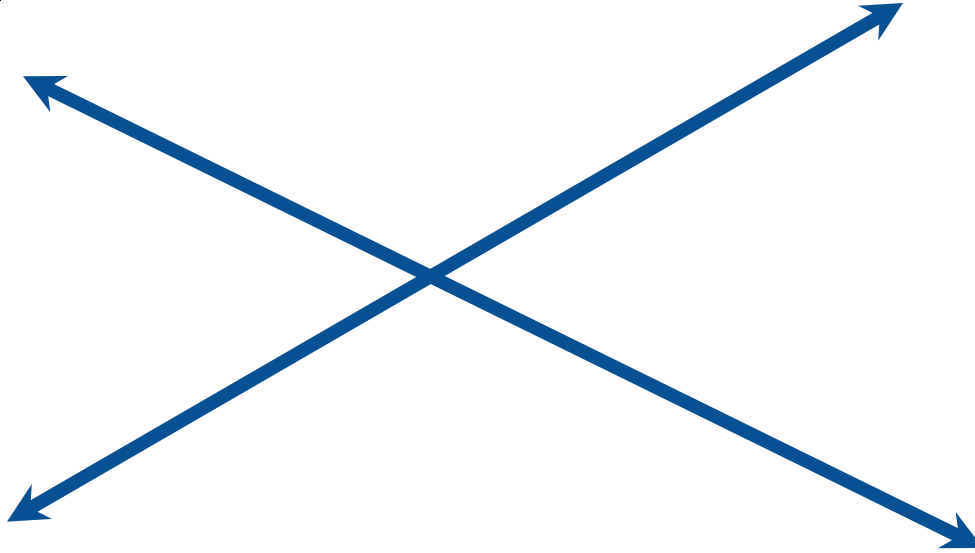
# Linear Pair Postulate



**If two angles form a linear pair, then they are supplementary**

# Vertical Angles

Two angles across from each other from the vertex, when two lines cross.

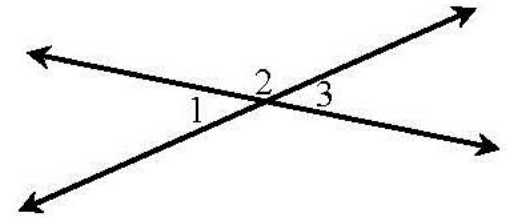


What would you conjecture is the relationship between vertical?

Leave as postulate? Prove as theorem?

Given:  $\angle 1$  &  $\angle 3$  are vertical angles

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



Statement

Reasons

1.  $\angle 1$  &  $\angle 3$  are vertical angles
2.  $\angle 1$  &  $\angle 2$  are a linear pair  
 $\angle 2$  &  $\angle 3$  are a linear pair
3.  $\angle 1$  &  $\angle 2$  are supplementary  
 $\angle 2$  &  $\angle 3$  are supplementary
5.  $\therefore \angle 1 \cong \angle 3$

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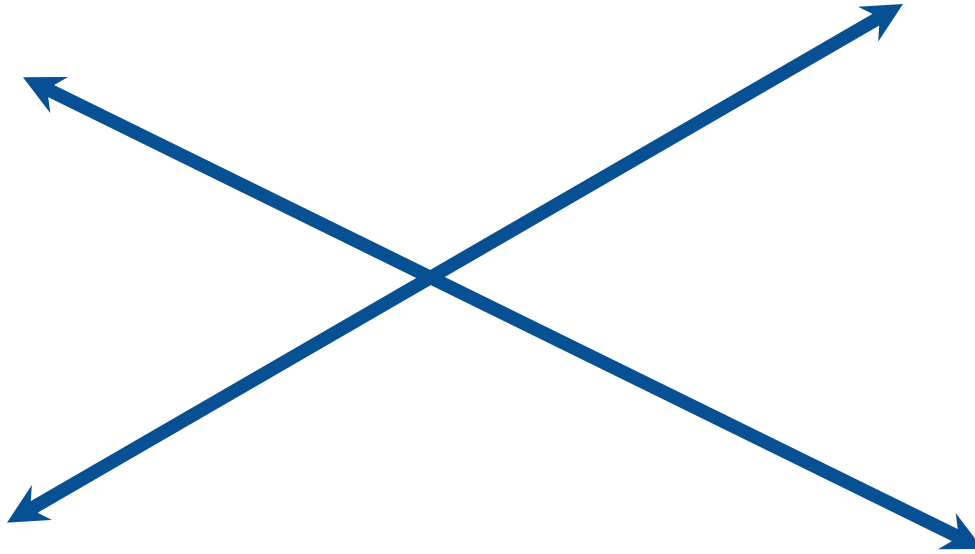
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# Vertical Angles (VA) Theorem

POK



If they are \_\_\_\_\_, then they are \_\_\_\_\_.

# Application:

If the measure of  $m\angle 1$  is  $5w+3$  and  $m\angle 3$  is  $98^\circ$ , find the measure of all the angles.

