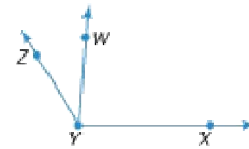| 2.11 Angle Addition Postulate

D is in the interior of $\angle ABC$ if and only if $m\angle ABD + m\angle DBC = m\angle ABC$. | |

1) Given: $m\angle XYZ = 122$ and $m\angle 2 = 86$
    Prove: $m\angle WYZ = 36$

STATEMENTS	REASONS
1.	1.
2.	2.
3.	3.
4.	4.

| 2.3 Supplement Theorem

If two angles form a linear pair, then they are supplementary angles. | |
| 2.4 Complement Theorem

If the non common sides of two adjacent angles form a right angle, then the angles re complementary angles | |
| 2.5 Properties of Angle Congruence

Reflexive Property of Congruence
$\angle 1 \cong \angle 1$
Symmetric Property of Congruence
If $\angle 1 \cong \angle 2$, then $\angle 2 \cong \angle 1$
Transitive Property of Congruence
If $\angle 1 \cong \angle 2$ and $\angle 2 \cong \angle 3$, then $\angle 1 \cong \angle 3$. | |

2.6 Congruent Supplements Theorem Angles supplementary to the same angle or to congruent angles are congruent.	
2.7 Congruent Complements Theorem Angles complementary to the same angle or to congruent angles are congruent.	

2) Prove that ∠2 and ∠3 in the given picture are congruent.
Given: ∠1 and ∠ 3 are supplementary.
Prove: ∠2 ≅ ∠3
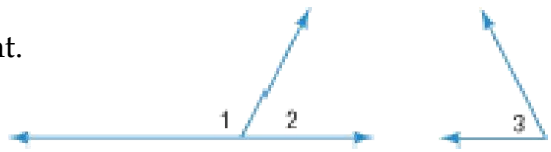
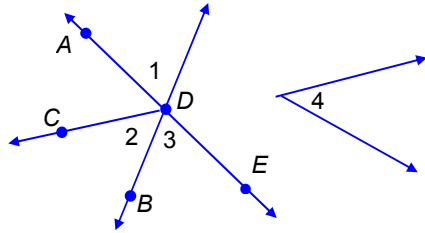| STATEMENTS	REASONS
1.	1.
2.	2.
3.	3.
4.	4.

2.8 Vertical Angles Theorem If two angles are vertical angles, then they are congruent.	

3) Prove that if $\overrightarrow{DB}$ bisects $\angle CDE$ and $\angle 1 \cong \angle 4$, then $\angle 2 \cong \angle 4$.

Given: $\overrightarrow{DB}$ bisects $\angle CDE$

$\qquad \angle 1 \cong \angle 4$

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

STATEMENTS	REASONS
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.

2.9 Perpendicular lines intersect to form four right angles.	
2.10 All right angles are congruent.	
2.11 Perpendicular lines form congruent adjacent angles.	
2.12 If two angles are congruent and supplementary then each angle is a right angle.	
2.13 If two congruent angles form a linear pair then they are right angles.	