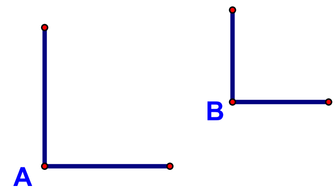
Theorem 1 **- If two angles are right angles, then they are congruent.**

Given: $\angle$**A is a right** $\angle$
$\angle$**B is a right** $\angle$

Prove: $\angle$**A** $\cong$ $\angle$**B**

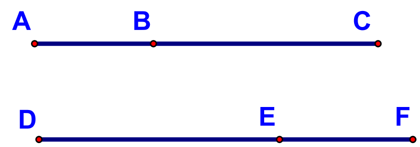


Statements	**Reasons**

Theorem 2 - **If two angles are straight angles, then they are congruent.**

Given: ∠ABC is a straight ∠
∠DEF is a straight ∠

Prove: ∠ABC ≅ ∠DEF

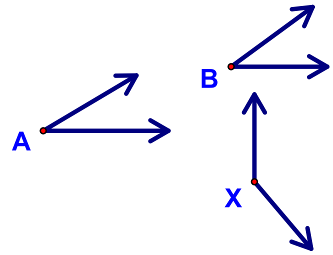


Statements	Reasons

Theorem 4 **- If angles are supplementary to the same angle, then they are congruent.**

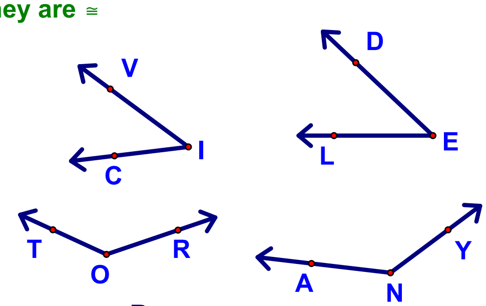
Given: ∠**A is supp. to** ∠**X**
∠**B is supp. to** ∠**X**

Prove: ∠**A** ≅ ∠**B**



Statements	**Reasons**

Theorem 5 - If ∠s are supplementary to ≅ ∠s, then they are ≅



Given: ∠VIC is supplementary to ∠TOR
∠DEL is supplementary to ∠ANY
∠VIC ≅ ∠DEL

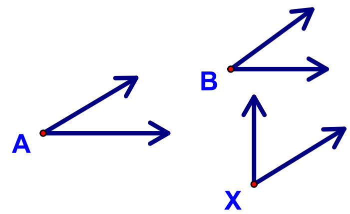
Prove: ∠TOR ≅ ∠ANY

Statements	Reasons

Theorem 6 **- If angles are complementary to the same angle, then they are congruent.**

Given: ∠A is compl. to ∠X
∠B is compl. to ∠X

Prove: ∠A ≅ ∠B

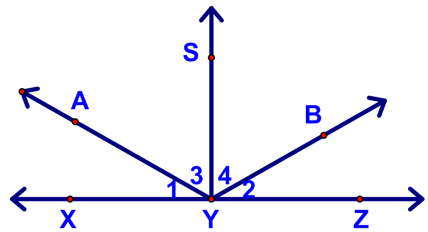


Statements	Reasons

Theorem 7 - If ∠s are complementary to ≅ ∠s, then they are ≅

Given: ∠1 is compl. to ∠3
∠2 is compl. to ∠4
∠3 ≅ ∠4

Prove: ∠1 ≅ ∠2



Statements	Reasons

Theorem 8 - If a segment is added to two ≅ segments, then the sums are ≅ (The Addition Property of ≅ Segments - Version 1).

Given: $\overline{AB} \cong \overline{CD}$

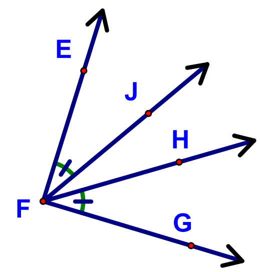
Prove: $\overline{AC} \cong \overline{BD}$

Statements	Reasons

Theorem 9 **- If an angle is added to two ≅ angles, then the sums are ≅ (The Addition Property of ≅ ∠s - Version 1).**

Given: ∠EFJ ≅ ∠GFH

Prove: ∠EFH ≅ ∠GFJ

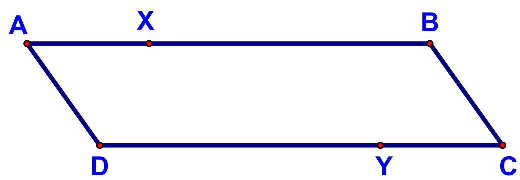


Statements	Reasons

Theorem 10 - If ≅ segments are added to ≅ segments, the resulting segments are ≅ (The Addition Property of ≅ Segments - Version 2).

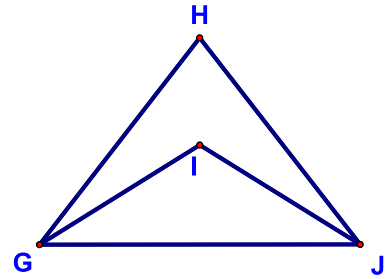
Given: $\overline{AX} \cong \overline{YC}$
$\overline{XB} \cong \overline{DY}$

Prove: $\overline{AB} \cong \overline{DC}$



Statements	Reasons

Theorem 11 **- If ≅ angles are added to ≅ angles, the resulting angles are ≅ (The Addition Property of ≅ ∠s - Version 2).**



Given: ∠HGI ≅ ∠HJI
∠IGJ ≅ ∠IJG

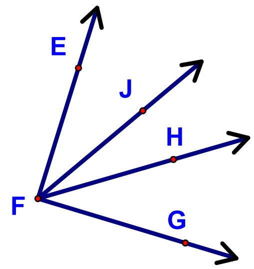
Prove: ∠HGJ ≅ ∠HJG

Statements	Reasons

Theorem 12 **- If an angle is subtracted from two ≅ angles, then the resulting ∠s are ≅ (The Subtraction Property of ≅ ∠s - Version 1).**

Given: ∠EFH ≅ ∠GFJ

Prove: ∠EFJ ≅ ∠GFH

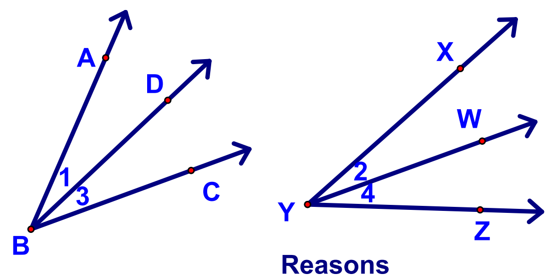


Statements	Reasons

***Theorem 13* - If ≅ ∠s are subtracted from ≅ ∠s the resulting ∠s are ≅**
(The Subtraction Property of ≅ ∠s - Version 2)

Given: ∠1 ≅ ∠2
∠ABC ≅ ∠XYZ

Prove: ∠3 ≅ ∠4

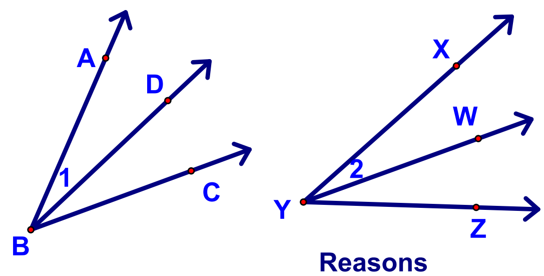


Statements	Reasons

Theorem 14 **- If angles are ≅, their like multiples are ≅ (Multiplication Property of ≅ ∠s).**

Given: ∠1 ≅ ∠2
$\overrightarrow{BD}$ bisects ∠ABC
$\overrightarrow{YW}$ bisects ∠XYZ

Prove: ∠ABC ≅ ∠XYZ

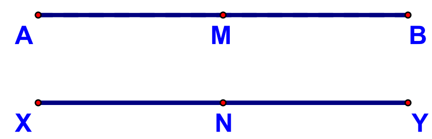


Statements	Reasons

Theorem 15 **- If segments are ≅, their like divisions are ≅ (Division Property of ≅ Segments).**

Given: $\overline{AB} \cong \overline{XY}$
M & N are midpoints

Prove: $\overline{AM} \cong \overline{XN}$

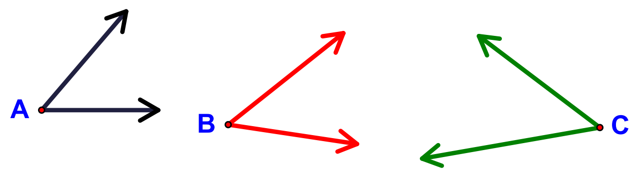


Statements	Reasons

Theorem 16 **- If segments (or ∠s) are ≅ to the same segment (or ∠), they are ≅ to each other (Transitive Property of ≅ Segments or ∠s - Version 1).**

Given: $\angle A \cong \angle B$
$\angle A \cong \angle C$

Prove: $\angle B \cong \angle C$

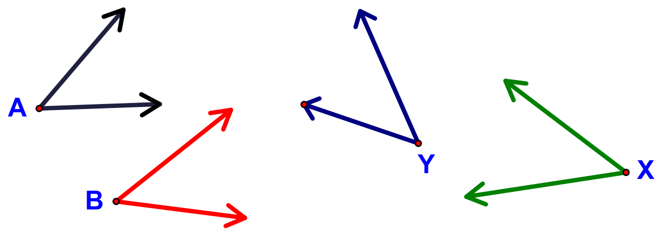


Statements	Reasons

Theorem 17 **- If segments (or ∠s) are ≅ to ≅ segments (or ∠s), they are ≅ to each other (Transitive Property of ≅ Segments or ∠s - Version 2).**

Given: ∠A ≅ ∠X
∠B ≅ ∠Y
∠X ≅ ∠Y

Prove: ∠A ≅ ∠B

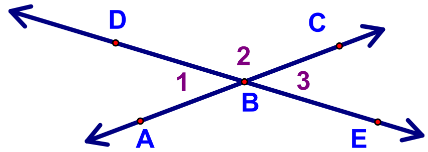


Statements	Reasons

Theorem 18 - Vertical Angles are ≅

Given: Diagram as shown.

Prove: ∠1 ≅ ∠3



Statements	Reasons