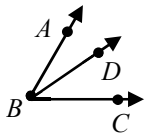
ANGLE PROOFS

Reference

Properties of Equality		Properties of Congruence
Addition Property Subtraction Property Multiplication Property Division Property Distributive Property	Substitution Property Reflexive Property Symmetric Property Transitive Property	Reflexive Property Symmetric Property Transitive Property

Definitions	
Definition of Congruence	The measures of two angles are equal if and only if the angles are congruent. $m\angle A = m\angle B \leftrightarrow \angle A \cong \angle B$
Definition of a Right Angle	An angle measures 90° if and only if it is a right angle. $m\angle A = 90^\circ \leftrightarrow \angle A$ **is a right angle**
Definition of Complementary Angles	Two angles are complementary if and only if the sum of their measures is 90°. **Complementary ↔ Sum is 90°**
Definition of Supplementary Angles	Two angles are supplementary if and only if the sum of their measures is 180°. **Supplementary ↔ Sum is 180°**
Definition of an Angle Bisector	An angle bisector divides an angle into two equal parts.
Definition of Perpendicular	Perpendicular lines form right angles.

Postulates	
Angle Addition Postulate	 $m\angle ABD + m\angle DBC = m\angle ABC$

Theorems	
Vertical Angles Theorem	If two angles are vertical, then they are congruent. **Vertical Angles → Congruent**
Complement Theorem	If two angles form a right angle, then they are complementary. **Form a Right Angle → Complementary**
Linear Pair Theorem (Supplement Theorem)	If two angles form a linear pair, then they are supplementary. **Form a Linear pair → Supplementary**
Congruent Complements Theorem	If two angles complementary to the same angle, then are congruent. (If $\angle A$ is complementary to $\angle B$ and $\angle C$ is complementary to $\angle B$, then $\angle A \cong \angle C$.)
Congruent Supplements Theorem	If two angles supplementary to the same angle, then are congruent. (If $\angle A$ is supplementary to $\angle B$ and $\angle C$ is supplementary to $\angle B$, then $\angle A \cong \angle C$.)