

Notes 2.6 – Geometric Proofs

PROPERTIES USED IN ALGEBRAIC & GEOMETRIC PROOFS	
Reflexive	If $A = A$, then $A = A$. * Everything equal to itself.
Symmetric	If $A = B$, then $B = A$. * Equal quantities remain equal when reversed.
Substitution	If $A = B$, then A may be replaced by B in any equation or expression.
Transitive	If $A = B$ and $B = C$, then $A = C$. * Squeeze together.

EXAMPLE 1: If $7 = A$ and $7 = B$, then $A = B$.

Given:

Prove:

Statements	Reasons

EXAMPLE 2:

Given: $\angle 1 \cong \angle 2$

Prove: $\angle 2 \cong \angle 1$

Statements	Reasons

EXAMPLE 3:

Given: $\angle 1$ & $\angle 2$ are right angles

Prove: $\angle 1 \cong \angle 2$

Statements	Reasons

EXAMPLE 4:

Given: $AB = DE$ & $BC = CD$

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

Statements	Reasons

EXAMPLE 5:

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

$\angle 2$ & $\angle 3$ are supplementary

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

Statements	Reasons

EXAMPLE 6:

Given: $a(b + 2) = 45$; $a = 3$

Prove: $b = 13$

Statements	Reasons