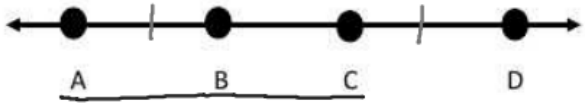
Geometry
Proofs

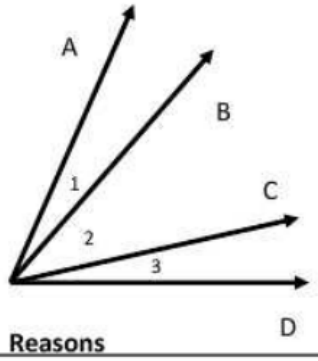
Name _____
Date _____ Per_____

Given: $AB = CD$

Prove: $AC = BD$



Statements	Reasons
1) $AB = CD$	1) Given
2) $BC = BC$	2) Reflexive prop.
3) $AB + BC = AB + BC$	3) Addition prop.
4) $AB + BC = CD + BC$	4) Substitution prop
5) $AC = AB + BC$ $BD = BC + CD$	5) Segment Add post
6) $AC = BD$	6) Substitution prop



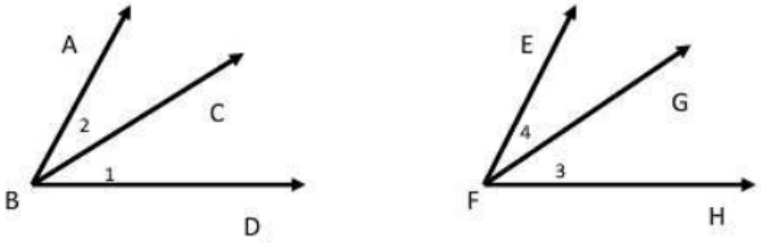
Given: $m\angle 1 = m\angle 3$

Prove: $m\angle ABD = m\angle CBE$

Statements	Reasons
1) $m\angle 1 = m\angle 3$	1) Given
2) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	2) Addition prop.
3) $m\angle ABD = m\angle 1 + m\angle 2$ $m\angle CBE = m\angle 3 + m\angle 2$	3) Angle Add post
4) $m\angle ABD = m\angle CBE$	4) Substitution prop.

Given: $m\angle ABD = m\angle EFH$
$m\angle 2 = m\angle 4$

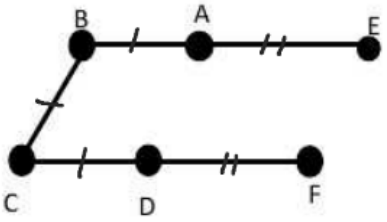
Prove: $m\angle 1 = m\angle 3$



Statements	Reasons
1) $m\angle ABD = m\angle EFH$, $m\angle 2 = m\angle 4$	1) Given
2) $m\angle ABD = m\angle 1 + m\angle 2$, $m\angle EFH = m\angle 3 + m\angle 4$	2) Angle Addition Postulate
3) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	3) Substitution Property
4) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	4) Substitution Property
5) $m\angle 1 = m\angle 3$	5) Subtraction Property

Given: $BA = BC, BC = CD, AE = DF$

Prove: $BE = CF$



Statements	Reasons
1) $BA = BC$, $BC = CD$, $AE = DF$	1) Given
2) $BA = CD$	2) Substitution prop.
3) $BE = BA + AE$, $CF = CD + DF$	3) Segment Addition Postulate
4) $BE = CD + AE$	4) Substitution prop.
5) $BE = CD + DF$	5) Substitution prop
6) $BE = CF$	6) Substitution prop.