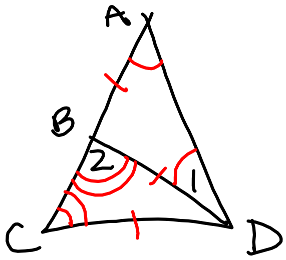
Ch4, #51

Given: $\angle A = \angle 1$, $\angle 2 = \angle C$

Prove: $AB = CD$



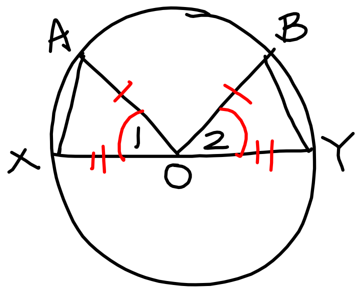
Proof

1. $\angle A = \angle 1$, $\angle 2 = \angle C$ — Given
2. $BD = CD$, $AB = BD$ — If 2 $\angle$'s in a $\triangle$ are =, the sides opposite them are =
3. $AB = CD$ — Substitution

Ch4, #52

Given: O is the midpoint of XY, $\angle 1 = \angle 2$, $OA = OB$

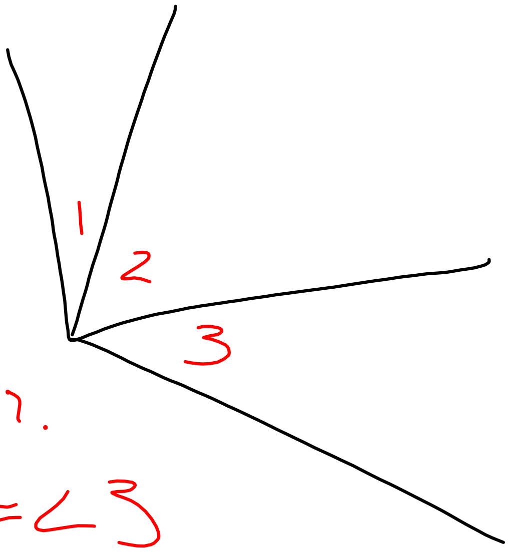
Prove: $\angle A = \angle B$

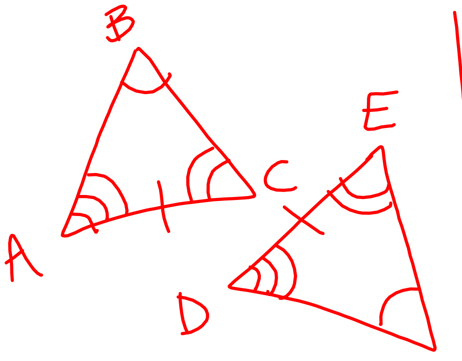


Proof

1. $\angle 1 = \angle 2$, $OA = OB$, O is midpoint of XY — Given
2. $OX = OY$ — Midpoint divides a segment into 2 equal segments
3. $\triangle XOA \cong \triangle YOB$ — SAS
4. $\angle A = \angle B$ — corresponding parts of $\cong$ $\triangle$'s are =

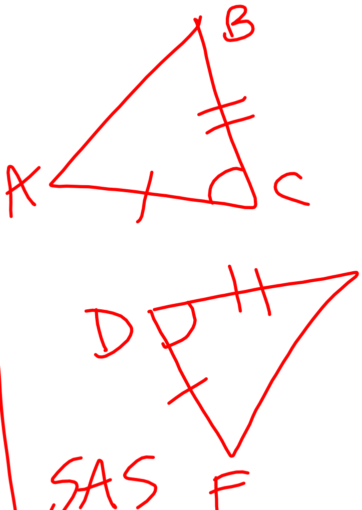
$\angle 1$ & $\angle 2$ are compl.
&
$\angle 2$ & $\angle 3$ are compl.
$\Rightarrow \angle 1 = \angle 3$





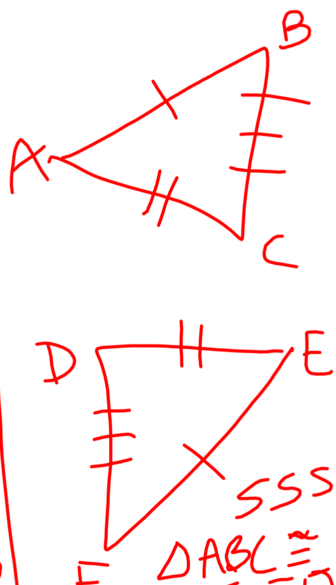
ASA

$\triangle ABC \cong \triangle DFE$



SAS

$\triangle ABC \cong \triangle FED$



SSS

$\triangle ABC \cong \triangle EFD$

5.1 – Properties of Inequality

Algebraic Axioms:

The "Three Possibilities" Property: either a>b, a=b, or a<b

The Transitive Property: If a>b and b>c, then a>c $a > b > c$

The Addition Property: If a>b, then a+c>b+c

The Subtraction Property: If a>b, then a-c>b-c

The Multiplication Property: If a>b and c>0, then ac>bc

The Division Property: If a>b and c>0, then a/c>b/c

The Addition Theorem of Inequality: If a>b and c>d, then a+c>b+d

Proof:

Statements	**Reasons**
1. a>b	Given
2. a+c>b+c	Addition Prop. of Inequality
3. c>d	Given
4. b+c>b+d	Addition Prop of Inequality
5. a+c>b+d	Transitive Prop. of Inequality