HW32

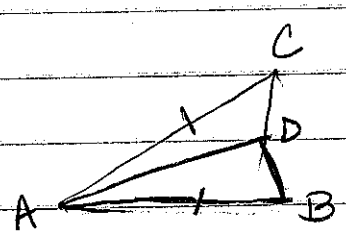
Exercises 2.3

7

Given: AD bisects $\angle BAC$ and $AC = AB$.

Prove: (a) $\triangle ABD \cong \triangle ACD$

(b) $\angle B = \angle C$

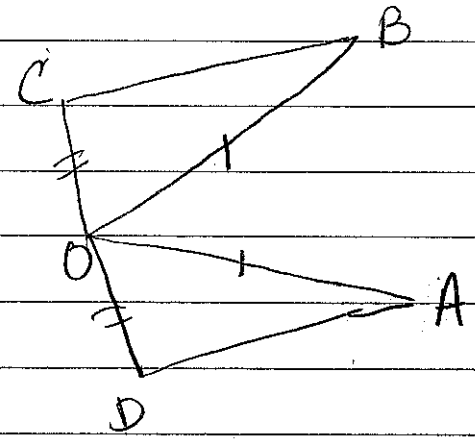


Proof.

Statements	Reasons
1 AD bisects $\angle BAC$ and $AC = AB$	1 Given
2 $\angle CAD = \angle BAD$	2 Def of angle bisectors
3 $AD = AD$	3 Identity
4 $\triangle ABD \cong \triangle ACD$	4 S.A.S.
5 $\angle B = \angle C$	5 C.P.C.T.E

9 Done in class

(9) Given: $\angle DOB$ and $\angle COA$ are right angles
$OD = OC$ and $OA = OB$
Prove: $\triangle AOD \cong \triangle BOC$



Proof:

Statements	Reasons
(1) $\angle DOB$ and $\angle COA$ are right angles. $OD = OC$ and $OA = OB$	(1) Given
(2) $\angle DOB = \angle COA$	(2) All right angles are equal
(3) $\angle DOB = \angle AOB + \angle DOA$ $\angle COA = \angle COB + \angle BOA$	(3) The whole is equal to the sum of all its parts
(4) $\angle AOB + \angle DOA = \angle COB + \angle BOA$	(4) Substitution axiom
(5) $\angle DOA = \angle COB$	(5) Subtraction axiom ($\angle AOB = \angle BOA$ are the same)
(6) $\triangle AOD \cong \triangle BOC$	(6) S.A.S.

$\angle A = \angle B$, by C.P.C.T.E.