CIRCLE ASSIGNMENT

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1 PROBLEM 1

1.ABC and ADC are two right triangles with common hypotenuse AC. Prove that $\angle CAD = \angle CBD$.

SOLUTION:

Given, AC is the common hypotenuse.

$$\angle B = \angle D = 90 \tag{1.0.1}$$

To prove,

$$\angle CAD = \angle CBD \tag{1.0.2}$$

Proof:

$\because$ $\angle$ ABC and $\angle$ ADC are 90°.

These angles are in the semi-circle.

Thus, both the triangles are lying in the semi-circle and AC is the diameter of the circle.

$\implies$ Points A,B,C and D are concylic.

Thus, CD is the chord.

$\implies \angle CAD = \angle CBD$(Angles in the same segment of the circle) (1.0.3)