Answer on Question #71257 – Math – Geometry

Question

Given ∠BCA =∠DCE,

∠B and ∠ D are right angles,

C is the midpoint of BD.

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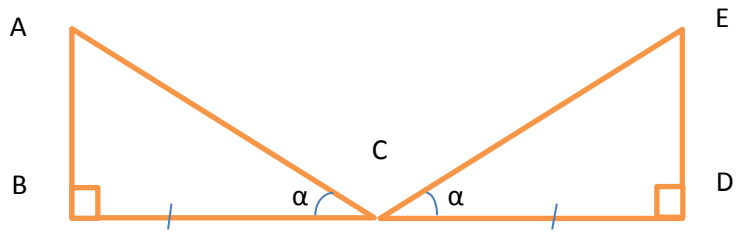
Prove BA=DE

Solution



Given

$$\angle BCA = \angle DCE = \alpha$$

Consider triangles ΔBCA, ΔDCE and apply the definition of the tangent

$$\tan\alpha = \frac{BA}{BC} = \frac{DE}{DC} \quad (1)$$

It is given that C is a midpoint of BD, then

$$BC = DC \ (2)$$

It follows from (1) and (2) that

$$BA = DE$$

QED.