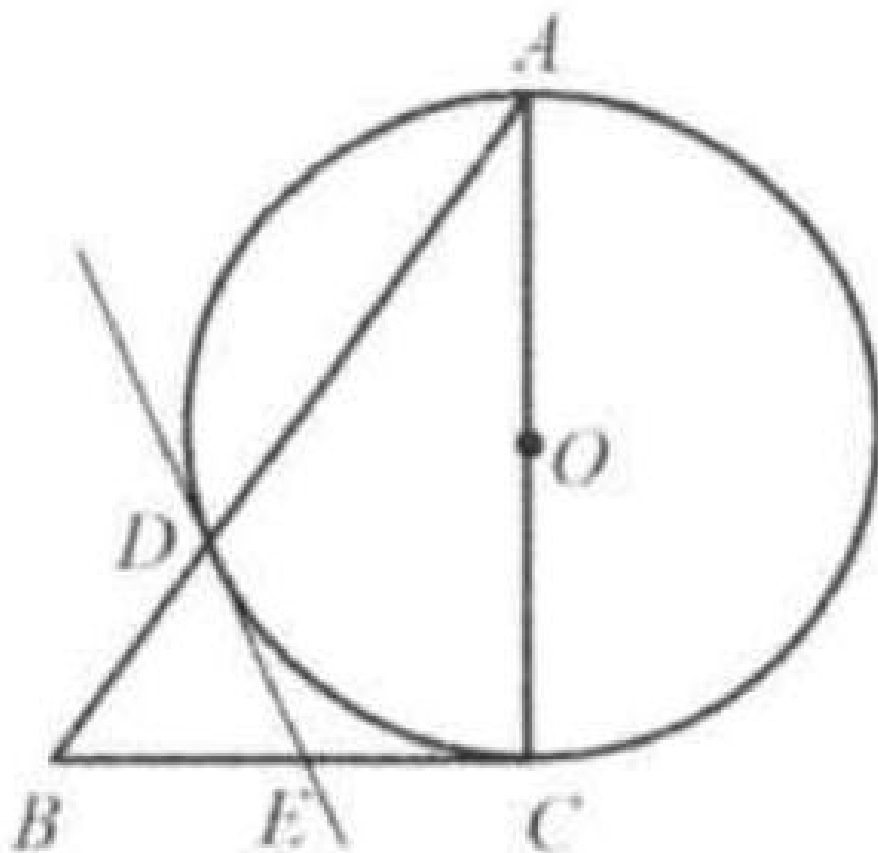# Example 2

As shown in the figure, $\triangle ABC$ is a right triangle with $\angle C = 90°$. $AC$ is the diameter of circle $O$. Circle $O$ meets the hypotenuse $AB$ at $D$. Draw the tangent through $D$ to the circle to meet the leg $BC$ at $E$. Prove: $BE = EC$.

Solution:



Connect CD, EO.

Since $AC$ is the diameter, $\angle ADC = 90°$. We also know that $\angle ACB = 90°$

Let $\angle A = \alpha, \angle B = \angle ACD = \beta$.

Then $\angle ODC = \angle OCD = \beta$

We also have $\angle ODC = \angle OEC = \beta$ (they all face the same arc $OC$ ).
Thus $\angle ABC = \angle OEC = \beta$ and $AB // OE$.
Since $O$ is the midpoint of $AC, E$ must be the



midpoint of $BC$.
That is, $BE = EC$.