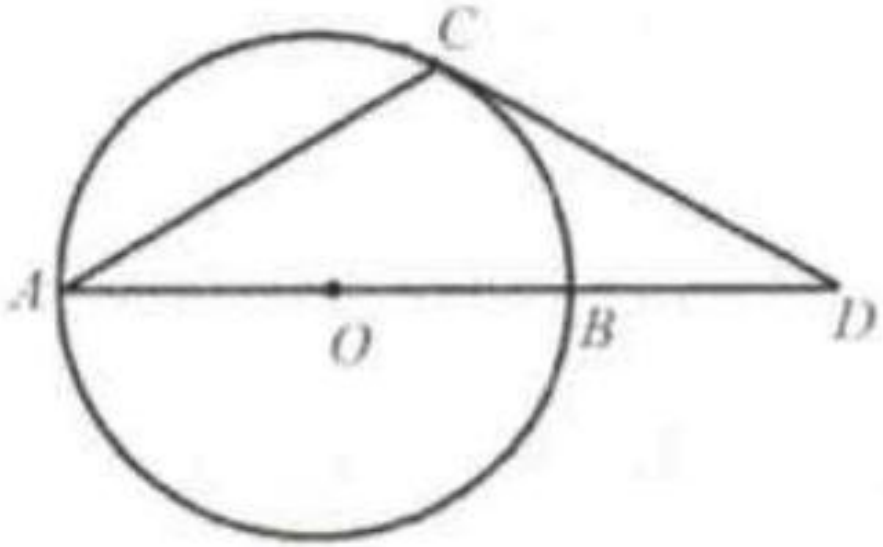
Example 10

AB is the diameter of circle O. Extend AB to D such that $BD = OB$. DC is tangent to the circle at C. Find the measure of $\angle A$.

Solution: $30°$.

Connect OC, BC.



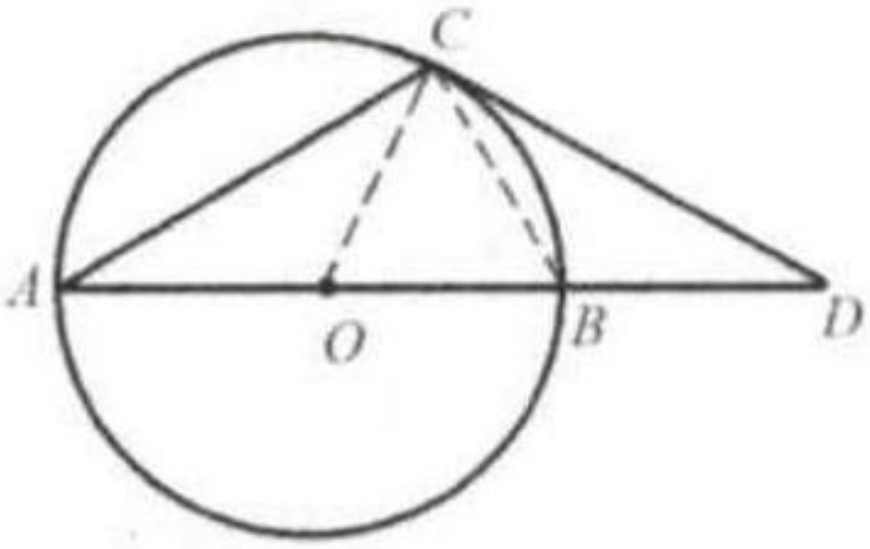
$\angle DCO = 90°$.

Since $BD = OB, BC$ is the median of right triangle DCO. Thus $BD = OB = BC = \mathrm{CO}$.

Triangle BCO

is an equilateral triangle and $\angle COB = 60°$.

Since $\angle COB$ is the central angle and $\angle A$ is the inscribed



angle facing the same arc $BC, \angle A = \frac{1}{2}\angle COB = 30°$.