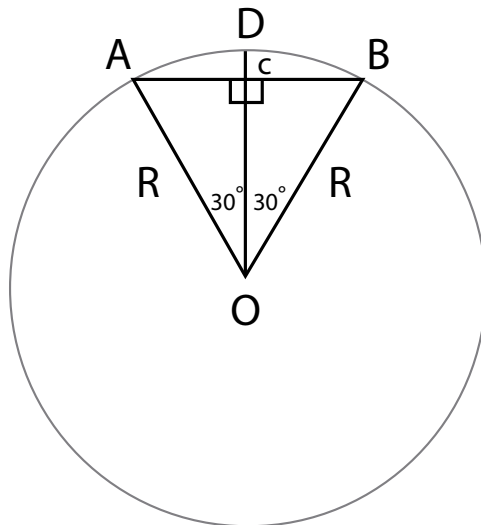


Solution
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by Benjamin Bloch, Ph.D.



~~\angle~~ $\angle AOB = 60^\circ$

a) From the drawing we note that triangle ABO is equilateral, and thus all angles equal 60 degrees = $(\pi)/3$ radians. Thus arc ADB = $R(\pi)/3 = 1,000 \times \pi = 3,142$ miles.

b) $ACB = R$ (equilateral triangle) = 3,000 miles.

c) $OC = R \cos 30 = 2,598$ miles.

Finally, $DC = R - OC = 402$ miles.