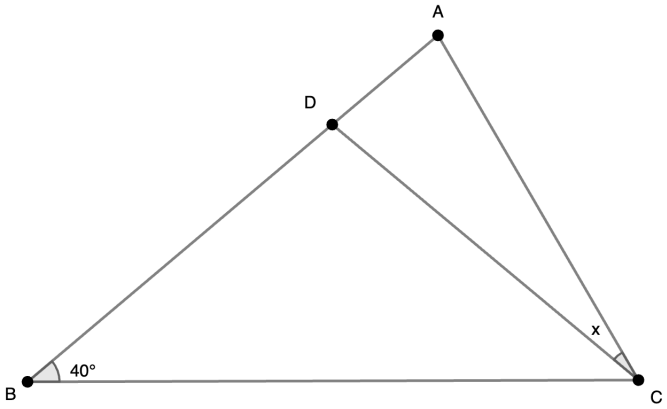
In the figure below, $\angle ABC = 40°$, segments $DB = DC = AC$. Find the measure of $\angle x$.[1]



[1] Kagoshima Prefecture

Solution

Answer : 20°

Proof: Since $DB = DC$, $\angle DCB = \angle DBC = 40^\circ$. $\angle ADC = \angle DCB + \angle DBC = 40^\circ + 40^\circ = 80^\circ$. Also, since $DC = AC$, $\angle A = \angle ADC = 80^\circ$. Therefore, $\angle \mathbf{x} = \mathbf{180}^\circ - \mathbf{80}^\circ - \mathbf{80}^\circ = \mathbf{20}^\circ$.