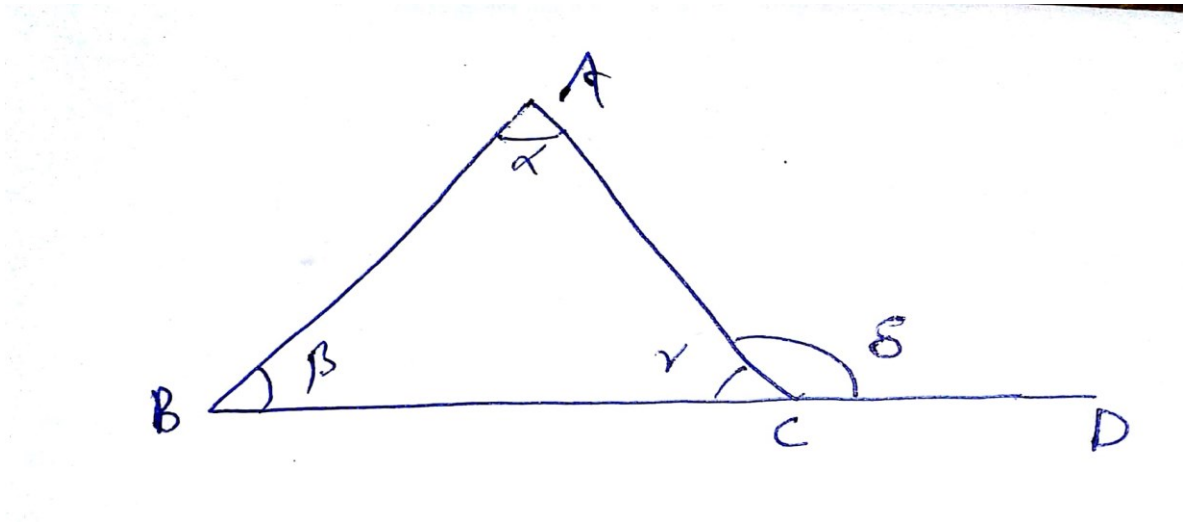
ANSWER to Question #90733 – Math – Geometry



Let $\alpha, \beta \text{ and } \gamma$ be the interior angles of ΔABC (as shown in the figure).

The sum of three interior angles of the triangle is

$$\alpha+\beta+\gamma=180^0 \ldots\ldots..(1)$$

Also, the line BC is produced to D hence BD is a straight line and ray CA stands on it.

Hence the sum of interior angle γ and the exterior angle δ (as shown in the figure) is equal to 180^0,

i.e.

$$\delta+\gamma=180^0 \ldots\ldots(2)$$

From (1) and (2) it follows that

$$\delta+\gamma=\alpha+\beta+\gamma \quad \Rightarrow \delta=\alpha+\beta$$

i.e. the formed exterior angle is equal to the sum of the opposite interior angles.