Answer on Question #69290 – Math – Geometry

Question

IN THE GIVEN FIGURE WE HAVE X AND Y ARE THE MIDPOINTS OF AB AND BC RESPECTIVELY AND AX= CY. SHOW THAT AB=BC.

Solution

We have
$AX = CY$ (given);
$BX = AX$ (X is the midpoint of AB);
$CY = BY$ (Y is the midpoint of BC).
Then
$BX = AX = CY = BY.$
 So
$BX = BY.$
The Euclid axiom (second axiom): If equals be added to the equals, the wholes are equal.
Thus,
$AX + BX = CY + BY = BY + CY$,
hence
 $AB = BC.$