

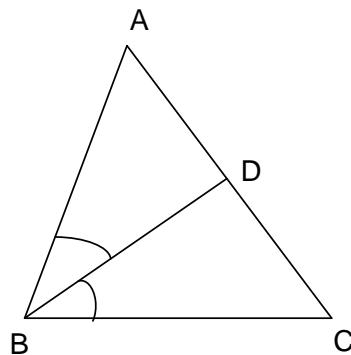
Answer on Question#38749 – Math – Geometry

BD bisects $\angle ABC$ and D lies on AC

If $AB=6$, $BC=14$, $AC=14$

Find AD

Solution:



The angle bisector theorem states that the ratio of the length of the line segment AD to the length of segment DC is equal to the ratio of the length of side AB to the length of side BC:

$$\frac{AD}{DC} = \frac{AB}{BC}$$

Let $AD = x$, then $DC = 14 - x$, so:

$$\frac{x}{14 - x} = \frac{6}{14}$$

Multiplying both sides on $7(14 - x)$:

$$7x = 3(14 - x)$$

Expanding:

$$7x = 42 - 3x$$

$$10x = 42$$

Answer: $x = 4.2$