Math Diversion 1017

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Source: https://www.youtube.com/watch?v=nSTsMhedEKQ
Title: A Nice Geometry Problem
 Presenter: Lines & Logic
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1 Problem

Find the value of x as it's depicted in the following figure:

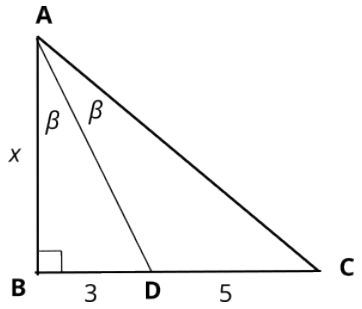

Figure 1. We'll use the Angle Bisector Theorem in this right triangle.

2 Problem

I leave it to the reader to look up the Angle Bisector Theorem. Anyway, there are a number of ways to use it; In this problem I'll use it as follows: Regarding the figure,

$$\frac{x}{3} = \frac{\text{AC}}{5}\,. \tag{1}$$

But since we have a right angle at **B**, by the Pythagorean theorem,

$$x^2 + 8^2 = \text{AC}^2\,. \tag{2}$$

The solution for x is

$$x = 6\,. \tag{3}$$