

Math Diversion Problem 536

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The definition of a good mathematical problem
is the mathematics it generates
— Andrew Wiles

The problem is found at:

Source: <https://www.youtube.com/shorts/IbLfCe0S7ZQ>

Title: The Weirdest Question on the SAT

Presenter: Your SAT Coach

1 The Problem

Determine the value of x from the given information.

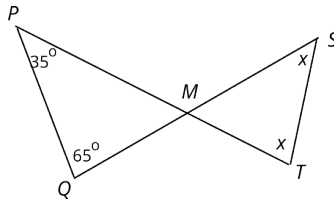


Figure 1. How would you go about to solve for x ?

Some Preparation

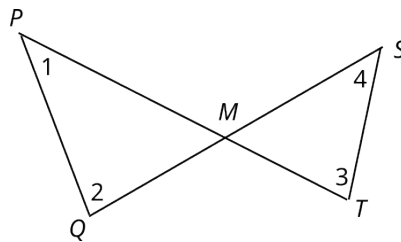


Figure 2. I call this the 'Poor Man's' version of the 'Butterfly Lemma', which says this: $\angle 1 + \angle 2 = \angle 3 + \angle 4$. (Why?)

2 The Solution

Using the 'Poor Man's' version of the Butterfly Lemma, we get the relation

$$2x = 35^\circ + 65^\circ, \tag{1}$$

from which we get

$$x = 50^\circ. \tag{2}$$