

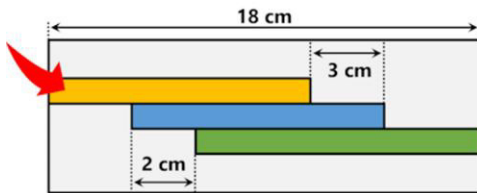
Three Rulers Puzzle

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Jim Stevenson

This is a simple problem¹ from Presh Talwalkar.

A parent was stumped by his 10 year old's homework, and posted it to Reddit AskMath. A box contains 3 rulers, as shown. If the blue ruler is 1 cm shorter than the green ruler, what is the length of the yellow ruler?



My Solution

Just slide the blue ruler 2 cm to the right until its left edge lines up with the left edge of the green ruler (Figure 1). That leaves 1 cm space to the right edge of the green ruler. So there are 6 cm of space to the right of the yellow ruler, making it **12 cm** long.

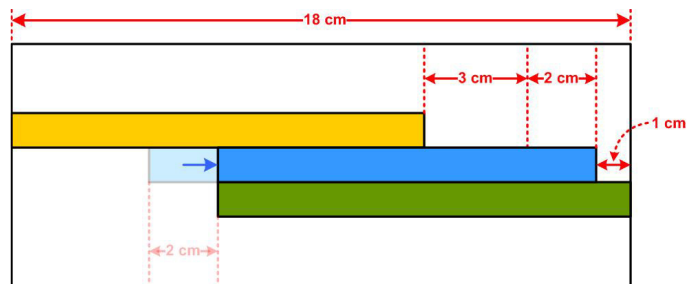


Figure 1

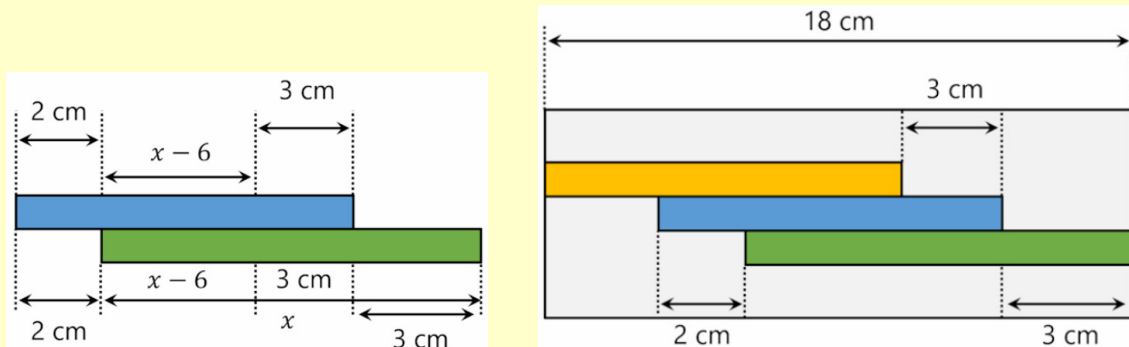
Talwalkar Solutions

Method 1: algebra

This is the approach I took. Let x = length of the green ruler. Then the blue ruler is $x - 1$. Subtracting 2 and 3 cm gives $x - 6$. The right part of the green ruler extending beyond the blue ruler is then:

$$x - (x - 6) - 3 = 3$$

So we have:



Then we have:

$$\text{yellow} + 3 + 3 = 18$$

$$\text{yellow} = \mathbf{12 \text{ cm}}$$

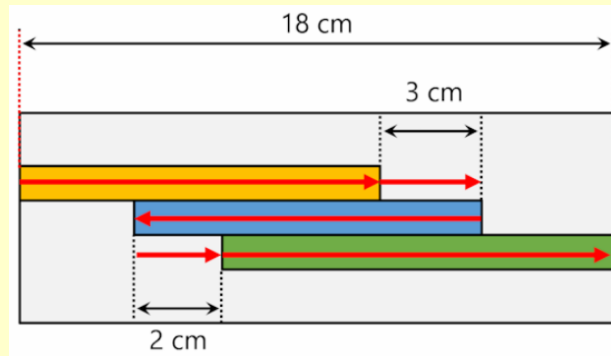
¹ 19 February 2026 (<https://mindyourdecisions.com/blog/2026/02/19/what-is-the-length-of-the-ruler/>)

This method is how I initially solved the problem. But it seems too many steps for a 10 year old. So here are a couple of easier methods.

Method 2: sum lengths

Just add and subtract lengths from the left side to the right side of the box.

$$\text{yellow} + 3 - \text{blue} + 2 + \text{green} = 18$$



Use blue = green - 1, so we have:

$$\text{yellow} + 3 - (\text{green} - 1) + 2 + \text{green} = 18$$

$$\text{yellow} + 3 - \text{green} + 1 + 2 + \text{green} = 18$$

$$\text{yellow} + 3 + 1 + 2 = 18$$

$$\text{yellow} = 12 \text{ cm}$$

Method 3: slide ruler

(This was my solution.)

Reference

Reddit AskMath

https://www.reddit.com/r/askmath/comments/1r8eau5/got_presented_with_this_math_question_f_or_10_year/

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