

Two fuses problem

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This logic puzzle about measuring time by burning fuses takes 30 seconds to explain, but can frustrate you for days. As with most of my favorite puzzles, this one will become extremely obvious once you know the solution. And no, it's not a cheesy solution. Interestingly enough it isn't hard initially because it has a lot of options, but because you have to think about the problem in the right way.

You are given two fuses and a lighter. Each fuse will burn for exactly 60 minutes. However the rate of burning is irregular, so cutting a fuse in half does not mean a burn time of 30 minutes. You need to time 45 minutes. How do you do it?

Click for solution

The key to solving this, is realizing that you need to use both fuses at the same time. The solution is to light both ends of one fuse and one end of the other fuse at the same time. When the fuse with both ends lit burns out, 30 minutes will have passed. At that point, light the other end of the other fuse. It will have burned for 30 minutes and will have 30 minutes left on it. But when you light the other end of it, that time gets cut in half, so it will burn for 15 minutes more. The original 30 plus 15 equals 45 minutes.

For a more detailed explanation, this site explains it well in my opinion:

<https://www.programmerinterview.com/index.php/puzzles/2-fuses-problem-measure-45-minutes/>.