

# Math Diversion 934

P. Reany

November 28, 2025

He that answereth a matter before he heareth it,  
it is folly and shame unto him.  
— Proverbs 18:13

Source: <https://www.algebra.com/algebra>  
Title: Question 15639  
Presenter: Patrick

## 1 The Problem

[From the viewpoint of the questioner] This problem has me stumped because I have 8 ounces already mixed and need to add to it to get 12 ounces. If I was just adding enough chocolate syrup to make it 42 percent, I would not be so confused. Here is the problem: I want to make the perfect 12 ounce cup of chocolate milk. It requires that the mixture is 42% chocolate syrup. What I have right now is 8 ounces of milk/syrup mixture that I know contains 30% syrup. What must the syrup concentration be in the remaining mixture that I must add in order to achieve perfection?

## 2 Solution

The reason this problem solver was so confused was because he or she did not understand the basics of solving mixed-rate problems. Adding chocolate syrup to chocolate milk is a ‘before and after process’ that preserves (conserves) the total amount of both syrup and milk in the doing

So, to choose one to balance on, we can write down the simple equation that the total amount of chocolate in the constituent parts (the original chocolate milk and the chocolate syrup) equals the total amount of chocolate in the end product, the super-chocolate milk. We need just one equation, which we’ll get from balancing on chocolate (the ounces, that is) on both sides:

$$(.30)8 + (P/100)4 = (.42)12, \tag{1}$$

where we converted percentages into decimal values or decimal equivalent values. Equation (1) has solution  $P = 66$ .

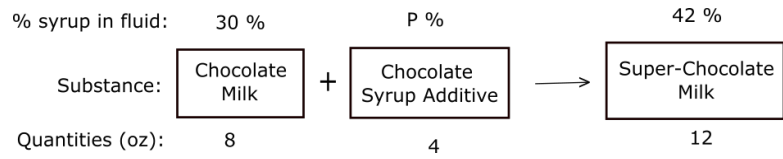


Figure 1. Standard setup for calculation: We've already shown the conservation of overall volumes in ounces.

---