Math Diversion 930

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Thanksgiving isn't Thanksgiving until
you've said thanks.
— Pastor Price

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Title: Question 702388
 Presenter: Patrick
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1 The Problem

If 20 pounds of sea water contains 1.6 pounds of salt, how many pounds of pure water must be added to produce a mixture containing 5% salt?

2 Solution

Another easy problem once we identify the totals and their parts. The point of me showing it, though, is to show a percent problem that makes sense and can be solved. Why? Because all the quantities are given in terms of pounds, so percent becomes a unitless quantity.

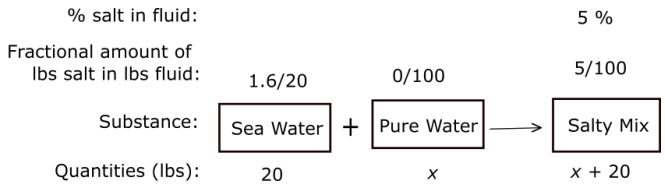

Figure 1. We've already balanced on pounds overall.

When we balance on salt over the before-and-after process, we'll get the equation we need to solve for x:

$$\frac{1.6}{20}\,20 + 0x = \frac{5}{100}\,(x + 20)\,. \tag{1}$$

This equation has solution $x = 12$ pounds.