Applications of Linear Systems:
Percent/Mixture Problems (Chapter 1)

Assigned Work:

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p. 39 # 11
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Feb 16-9:58 AM

Applications of Linear Systems:
Percent/Mixture Problems

Sept 22/2011

Assigned Work: p. 27 # 7 p. 39 # 11 p. 55 # 10, 12

1. Percentages can be expressed as a fraction or a decimal.

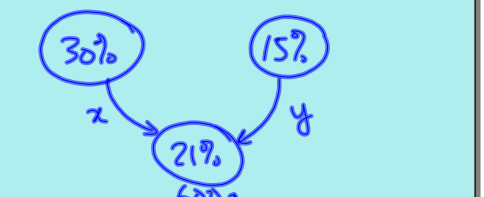
$$25\% = \frac{25}{100} = 0.25$$

2. Use the wording of the question to help you choose your unknowns (variables).

3. Make sure your units are consistent.

Feb 19-10:00 PM

Ex. 1) One type of granola is 30% fruit, and another type is 15% fruit. What mass of each type of granola should be mixed to make 600 g of granola that is 21% fruit?



$x + y = 600$ ①

$0.30x + 0.15y = 0.21(600)$

$\times 100$

$30x + 15y = 21(600)$

$30x + 15y = 12600$ ②

① $\times 15$: $15x + 15y = 9000$

Subtract $\frac{15x}{15} = \frac{3600}{15}$

$x = 240$

Sub $x = 240$ into ①

$240 + y = 600$

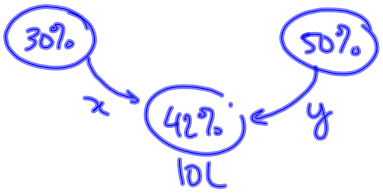
$y = 360$

∴ we mix 240 g of 30% granola and 360 g of 15% granola

Feb 19-10:00 PM

Copy and try this!

Ex. 2) A chemistry teacher needs to make 10 L of 42% sulphuric acid solution. The acid solutions available are 30% sulphuric acid and 50% sulphuric acid, by volume. How many litres of each solution must be mixed to make the 42% solution?



$x + y = 10$ ①

$30x + 50y = 42(10)$

$30x + 50y = 420$ ②

① $\times 50$: $50x + 50y = 500$

Subtract: $\frac{-20x}{-20} = \frac{-80}{-20}$

$x = 4$

Sub $x = 4$ into ①

$4 + y = 10$

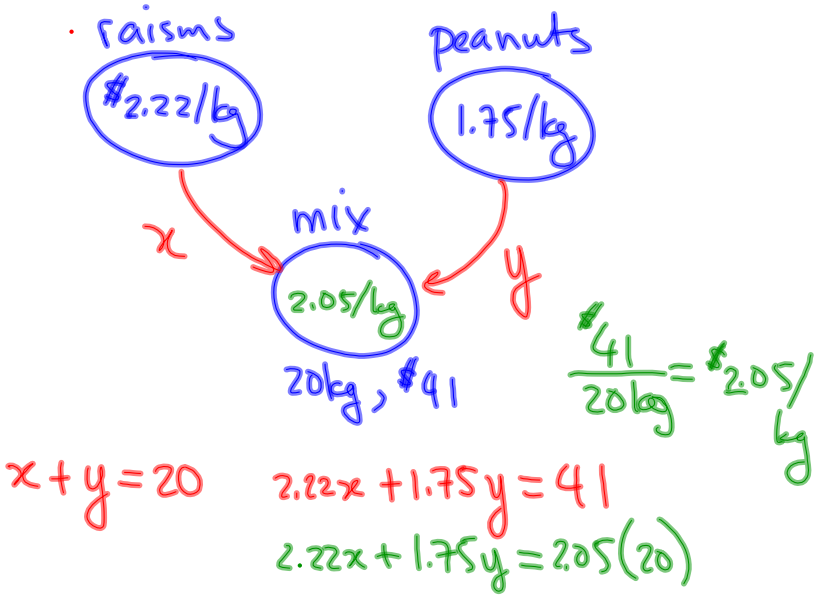
$y = 6$

∴ need to mix 4L of 30% with 6L of 50%.

Feb 19-10:00 PM

Try this!

Ex. 3) A candy store is preparing a mixture of chocolate raisins and chocolate peanuts. The raisins sell for $2.22/kg and the peanuts for $1.75/kg. How much of each type must be mixed to make 20 kg of a mixture that will sell for $41?



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