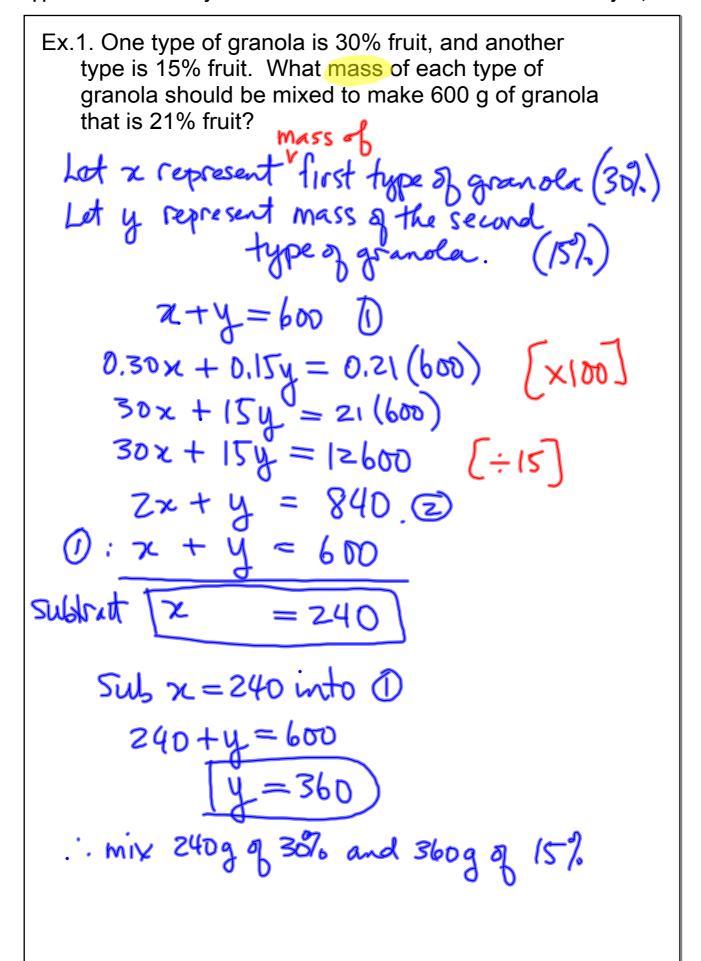
Applications of Linear Systems: Percent/Mixture Problems



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.



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?

the 42% solution?

Let
$$x$$
 be the volume of 30% H_2 Soy (aq.)

Let y be the volume of 50% II II
 $x+y=10$ 0
 $0.3x+0.5y=0.42(10)$, $[x10]$
 $3x+5y=42$ (2)

(1): $y=-x+10$ (3)

sub (3) into (2)

 $3x+5(-x+10)=42$
 $3x-5x+50=42$
 $-2x=-8$
 -2
 $-2x=-8$
 -2
 $x=4$

Sub $x=4$ into (3)

 $y=-4+10$
 $y=6$





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