

(18) Almonds \$6 per pound
 Walnuts \$5.20 per pound
 Mixture 30 lbs
 Total cost of Mixture is \$165

How many pounds of
 almonds and Walnuts
 should be mixed to
 get a Mixture cost of \$165

almonds	Walnuts	MIXTURE
x	$30-x$	30
(cost of almonds)	(cost of Walnuts)	(cost of MIXTURE)

Let x = no. lbs almonds

Note: The cost of the
 almonds plus the
 cost of the Walnuts
 when mixed together
 must add up to \$165

$$6x + 5.20(30-x) = 165 \quad \leftarrow \text{given in problem}$$

$$6x + 156 - 5.20x = 165$$

$$6x - 5.20x = 165 - 156$$

$$0.80x = 9$$

$$\frac{0.80x}{0.80} = \frac{9}{0.80}$$

$$x = 11.25 \text{ lbs of almonds}$$

$$30 - x = 30 - 11.25 = 18.75 \text{ lbs of Walnuts}$$

J.B. Must Mix 11.25 lbs of almonds with
 18.75 lbs of Walnuts to get a
 Mixture of ALMONDS AND WALNUTS
 That cost a Total of \$165.

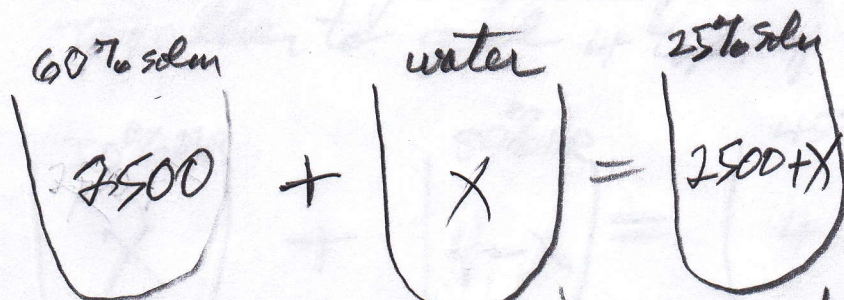
- #72 Teacher needs a 5% sulfuric acid solution,
 (2) He/she has only 8 oz. of a 25% sulfuric acid solution,
 (3) He decides to make a 5% Sulf. acid soln by adding water to the 25% sulf. acid soln.
How much water must he add?

$$\begin{array}{c}
 \begin{array}{ccc}
 \begin{array}{c} 25\% \text{ soln} \\ \text{8} \end{array} & + & \begin{array}{c} \text{Water} \\ \text{X} \end{array} = \begin{array}{c} 5\% \text{ soln} \\ \text{8+X} \end{array} \\
 \text{(amt of Sulf. acid)} & + & \text{(amt of Sulf. acid)} = \text{(amt of Sulf. acid)} \\
 \downarrow & & \downarrow \\
 0.25(8) + 0(X) & = & 0.05(8+X) \\
 2 & = & 0.05(8) + 0.05X \\
 2 & = & 0.4 + 0.05X \\
 2 - 0.4 & = & 0.05X \\
 1.6 & = & 0.05X \\
 \swarrow & & \searrow \\
 \frac{0.05X}{0.05} & = & \frac{1.6}{0.05} \\
 \boxed{X = 32 \text{ ounces}} & & \checkmark
 \end{array}
 \end{array}$$

The teacher must add 32 ounces of water to the 25% solution to get a 5% sulfuric acid solution.

Similar to 21

(22) David Has 2500 gal. of Hydrogen Peroxide; 60% pure Hydrogen Peroxide
 How much distilled Water (0% Hydrogen Peroxide)
 will David need to add to this solution to
 create a new solution that is 25% pure Hydrogen Peroxide



$$\left(\begin{array}{c} \text{amt of} \\ \text{pure} \\ \text{Hyd. Perox.} \end{array} \right) + \left(\begin{array}{c} \text{amt of} \\ \text{Pure} \\ \text{Hydrogen} \\ \text{Peroxide} \end{array} \right) = \left(\begin{array}{c} \text{amt of} \\ \text{Pure} \\ \text{Hyd. Perox.} \end{array} \right)$$

Let x be the amt of water added to the 60% solution.

$$0.60(2500) + 0(x) = 0.25(2500+x)$$

$$1500 + 0 = 0.25(2500) + 0.25x$$

$$1500 = 625 + 0.25x$$

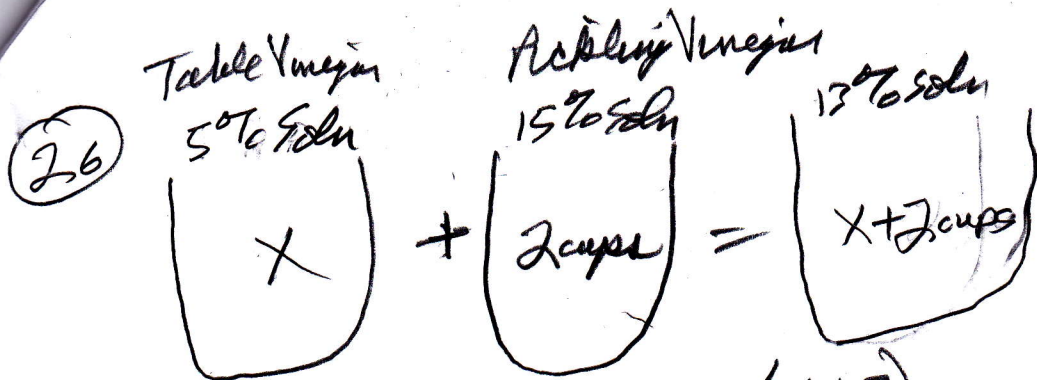
$$1500 - 625 = 0.25x$$

$$875 = 0.25x$$

$$\frac{0.25x}{0.25} = \frac{875}{0.25}$$

$$x = 3,500 \text{ gal}$$

David added 3,500 gal of distilled water to the 60% solution



$$0.05X + 0.15(2) = 0.13(X+2)$$

$$0.05X + 0.30 = 0.13X + 0.26$$

$$0.05X - 0.13X = 0.26 - 0.30$$

$$-.08X = -.04$$

$$\frac{-0.08X}{-0.08} = \frac{-0.04}{-0.08}$$

$$X = 0.5 \text{ cups} \checkmark$$

Alex should mix 0.5 cups ($\frac{1}{2}$ cup) of the Table Vinegar with the 2 cups of Pickling Vinegar to obtain Vinegar that is 13% acid.

* The Problems

- ① Alex wants Vinegar that is 13% acetic acid
- ② He has 5% acetic acid solution (Table Vinegar)
- ③ He has 2 cups of 15% acetic acid sol'n. (PICKLING VINEGAR)
- ④ How many cups of the Table Vinegar should Alex mix with the 2 cups of Pickling Vinegar to get a 13% acetic acid sol'n