

2.7 Part 2 Applications

HW pg. 253-256 #'s 31,34,35,41,42,47

Nov 1-11:27 AM

Ex 5
 Wt %: $\frac{\text{mL of pure acid}}{\text{mL of mix}} = \text{con of acid}$
 $.35 \times 50 = 17.5$ of pure acid
 $X = \text{mL of acid added}$
 $X + 17.5 = \text{mL of pure acid in mix}$
 $X + 50 = \text{mL of resulting mix}$
 $\frac{X + 17.5}{X + 50} = .75 \cdot \frac{X + 50}{X + 50}$
 $X + 17.5 = .75x + 37.5$
 $-.75x - .75x \quad -17.5 \quad -17.5$
 $\frac{.25x}{.25} = \frac{20}{.25} \quad X = 80$
 add 80 mL of pure to the 35% to get the 75% solution.

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34 $p(t) = \frac{500 + (250t)}{10 + .5t}$
 a. 200, 350, 425
 b. yes @ 500
 c. 500, because of HA.
 $HA = \frac{250t}{.5t}$
 $= \frac{250}{.5}$
 $= 500$

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42
 a. $T = \frac{17}{X} + \frac{53}{X + 43}$
 $T = 1 \text{ hr } 40 \text{ min}$
 $\frac{140}{60} = 1 \frac{2}{3} = \frac{5}{3}$
 $X = 20.45$
 b. $\frac{5}{3} - \left(\frac{17}{X} + \frac{53}{X + 43} \right) = 0$

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