Name _____ Class _____ Date _____

Reteaching 2-6

Mixture Problems

OBJECTIVE: Model mixture problems **MATERIALS:** None

A table is useful in organizing information from mixture problems. Below is an example of a table for organizing known and unknown quantities in an acid percent mixture problem.

	Amount of Solution	**Percent Acid**	**Amount of Acid**
Solution 1			
Solution 2			
Mixture			

Example

A chemist has one solution that is 30% acid and another solution that is 80% acid. How many liters of each solution does the chemist need to make 200 liters of a solution that is 40% acid?

Define: Let a = the number of liters of the 30% acid solution
Let $200 - a$ = the number of liters of the 80% acid solution

Set up table:

	Amount of Solution	**Percent Acid**	**Amount of Acid**
30% Solution	a	30%	$0.3a$
80% Solution	$200 - a$	80%	$0.8(200 - a)$
40% Solution	200	40%	$0.4(200)$

Relate: the amount of acid in the 30% and 80% solutions = the amount of acid in the 40% solution

Write: $0.3a + 0.8(200 - a) = 0.4(200)$

$0.3a + 160 - 0.8a = 80$ ← **Use the Distributive Property.**

$-0.5a + 160 = 80$ ← **Combine like terms.**

$-0.5a + 160 - 160 = 80 - 160$ ← **Subtract 160 from each side.**

$-0.5a = -80$ ← **Simplify**

$\frac{-0.5a}{-0.5} = \frac{-80}{-0.5}$ ← **Divide each side by −0.5**

$a = 160$ ← **Simplify**

Final answer: The chemist needs 160 L of the 30% solution and 200 − 160, or 40 L, of the 80% solution.

Exercise

1. Josiah wants to make a beverage that contains 40% orange juice. He has an orange juice beverage that contains 25% orange juice and wants to add pure orange juice to it to make a beverage that contains 40% orange juice. How much of the orange juice beverage and pure orange juice must he combine to make 2 gallons of 40% orange juice?

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