



Math Olympiad and Problem Solving Programs
E220 - Intermediate Math Competitions
Problem Set 23.1 - Mixtures

Name:

Date:

1. 48 g

2. $20 \text{ oz of } 65\%, 10 \text{ of } 35\%$

3. 12

4. 3.75 quarts

5. Free point

6. 4 h

7. $150 \text{ lbs at } \$2.10, 150 \text{ lbs at } \1.90

8. $36, 44 \text{ knots/hr}$

9. Let's set up a table where x is the amount in quarts of fluid to be removed and then replaced.

have	remove	replace	total
20	x	x	20
.40	.40	1.00	.50
8	.4x	x	10

So we multiply each quantity (first row) by percentage (second row) to get the total (third row). Now we can set up an equation. There are currently 8 quarts of antifreeze in the radiator, and we take away $.4x$ quarts of antifreeze and replace it with x quarts of antifreeze and get 10 quarts of antifreeze. In otherwords, solve the following:

$$8 - .4x + x = 10$$

This gives us $x = 3.\bar{3} = 3\frac{1}{3} \text{ quarts}$

10. $800 \text{ pounds milk and } 200 \text{ pounds cream}$