3.3 Notes: More Word Problems

Business Problems

A company reimburses its salesperson $208 for a business conference plus $.54 per mile driven. How many miles did she drive if the total reimbursement was $244.18?

flat rate

$208 + .54x = 244.18$

$-208 \qquad -208.00$

$\frac{.54x}{.54} = \frac{36.18}{.54}$

$x = 67$ miles

Formulas (on p. 187)

In your savings account, you earned $46.08 in interest. If you invested $640 for 6 months, what was your interest rate?

$I = Prt$

Interest, Principal, interest rate (decimal), time (yrs)

$46.08 = 640 \cdot r \cdot \frac{1}{2}$

$\frac{46.08}{320} = \frac{320r}{320}$

$r = .14$

$r = 14\%$

Rate Problems $d = rt$

One jogger begins his run on a path and jogs at a rate of 6 mph. A second jogger begins at the same spot, but runs at a rate of 6.5 mph. The second jogger begins 15 minutes after the first jogger. How long will it take for the second jogger to catch up to the first jogger?

$rt = rt$

$6t = 6.5\left(t - \frac{1}{4}\right)$

$6t = 6.5t - 1.625$

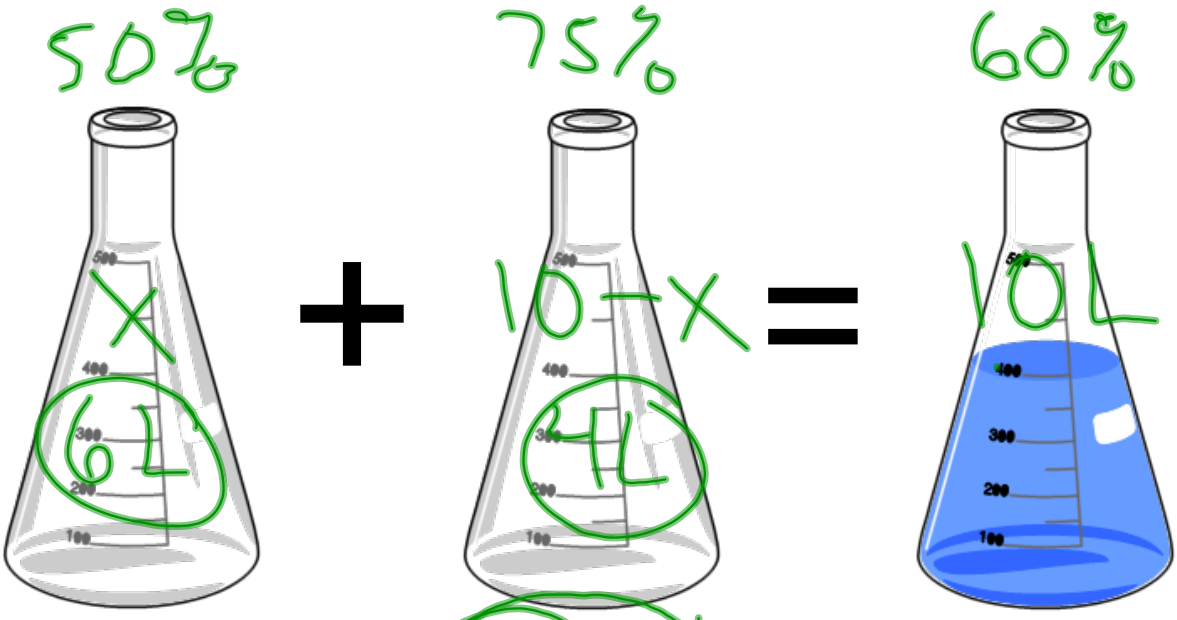
$-6.5t \quad -6.5t$

$\frac{-.5t}{-.5} = \frac{-1.625}{-.5}$

$t = 3.25$ hours

Mixture Problem

Determine the number of liters of a 50% solution and number of 75% solution that are required to make 10 liters of 60% solution.



$.5x + .75(10 - x) = .6(10)$

$.5x + 7.5 - .75x = 6$

$-.25x + 7.5 = 6$

$-7.5 \quad -7.5$

$\frac{-.25x}{-.25} = \frac{-1.5}{-.25}$

$x = 6 \text{ L}$

HW: p. 194, 2-54 every other even, every even for extra credit