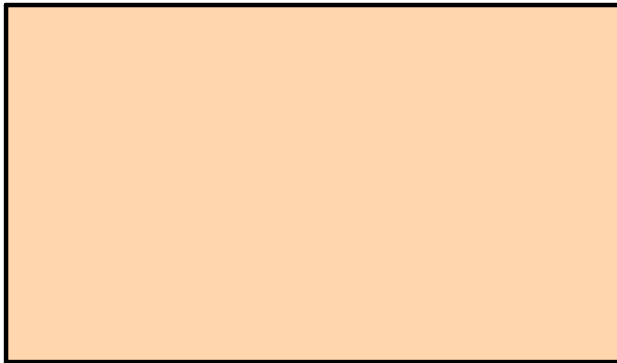


Overview:

- * Discuss algebra pre-test results
- * Assign Problem Set #3 (Due next **Wednesday**)
- * More examples from 7.2

HW for the weekend:

- * Finish up HW from 7.2
- * Start PS3
- * Read Sec. 7.3



Oct 23-9:01 AM

5. Mixture Problem: A radiator contains 8 quarts of a mixture of water and antifreeze. If 40% of the mixture is antifreeze, how much of the mixture should be drained and replaced by pure antifreeze so that the resultant mixture will contain 60% antifreeze?



8 quarts mixture drain x quarts add x qts af.

60% H ₂ O 40% af.	→	60% H ₂ O 40% af.	→	40% H ₂ O 60% af.
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Write an equation relating volume of af. goal: 60% af.

$$8(.4) - x(.4) + x = 8(.6)$$

Solve as HW. $2\frac{2}{3} = x$

What is the goal?
What sort of answer should we expect?

Oct 22-9:03 AM

6. Interest Problem: Cherelle won \$6,000 in a slot machine in Las Vegas. She invested part at a 2% simple interest and the rest at 4%. At the end of the year, she earned a total of \$165 in interest. How much did she invest at each rate?

$$i = p \cdot r \cdot t$$

Let x be amt @ 2%.
Then $(6000 - x)$ is amt @ 4%.

$$x(.02)(1) + (6000 - x)(.04)(1) = 165$$

$$.02x + \underset{-240}{240} - .04x = \underset{-240}{165}$$

$$-.02x = -75$$

$$x = \frac{-75}{-.02} = \$3750$$

So \$3,750 was invested at 2%

and $(6000 - 3750) = 2250$ was invested @ 4%.

Should we expect to have more at 2% or more at 4%?

If it was all invested at 2%: $i = (6000)(.02) = 120$

at 4%: $i = 240$

Expect more money to be invested at 2% since \$165 is closer to \$120.

Oct 22-9:03 AM

7. Money Problems: Amondo has \$5.25 worth of nickels and dimes in his piggy bank. If he has three times as many nickels as dimes, how many dimes does Amondo have in his bank?

Let $d = \#$ of dimes in his bank.
Then $3d$ is the $\#$ of nickels.



# coins	value of each coin	total value for these coins
d	.10	$(.10)d$
$3d$.05	$(.05)(3d) = .15d$
		+ \$5.25

$$(.10d) + (.15d) = 5.25$$

$$\frac{.25d}{.25} = \frac{5.25}{.25} \Rightarrow d = 21$$

So there are 21 dimes and $3 \times 21 = 63$ nickels.

Alternate solution:

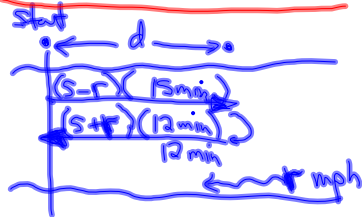
Three nickels for each dime \rightarrow those are groups of 25 cents.

How many quarters are in \$5.25?

$$5.25 \div .25 = 21$$

Oct 22-9:04 AM

8. Distance = Rate x Time Problem: A boy can row a boat at a constant rate of 5 miles per hour in still water. He rows upstream (with a current) for 15 minutes and then rows downstream, returning to his starting point in another 12 minutes. Find the rate of the current. Find the total distance traveled.



$$d = (s-r)\left(\frac{15}{60}\right)$$

$$d = (s+r)\left(\frac{12}{60}\right)$$

plug in $r = \frac{2}{9}$

$$d = \left(5 + \frac{2}{9}\right)\left(\frac{1}{5}\right)$$

$$d = 1 + \frac{1}{9} = 1\frac{1}{9}$$

$$d \approx 1.11 \text{ mi}$$

$$\text{Total dist.} = 2.22 \text{ mi}$$

$$\text{So } d = d \Rightarrow (s-r)\frac{1}{4} = (s+r)\frac{1}{3} \Rightarrow 20$$

$$5(s-r) = 4(s+r)$$

$$\begin{array}{r} 2s - 5r = 20 + 4r \\ \underline{-20} \quad \underline{-4r} \end{array}$$

$$\begin{array}{r} 5 - 5r = 4r \\ \underline{+5r} \quad \underline{+5r} \end{array}$$

$$s = 9r$$

$$.56 \left(\frac{s}{9} = r \right)$$

Oct 22-9:04 AM