Homework:

Review Worksheet 6

Homework

Type of Story Problems:

A. Direct Variation - used when "x" & "y"
both increase or decrease

$$\frac{x_1}{x_2} = \frac{y_1}{y_2}$$

B. Indirect Variation - used when "x" increases
& "y" decreases

$$\frac{x_1}{x_2} = \frac{y_2}{y_1}$$

C. Percent formula - used when finding the % of a number

$$of(\%) = is \quad -OR- \quad \frac{is}{of} = \frac{\%}{100}$$

D. Percent of Change - used when price increases or decreases

Original ± Original(%) = New

E. Simple Interest - used when investing money

Interest = principle • rate • time

Type of story problems

Three Ways we use the Distance Formula:
Distance = rate•time

$D_1 + D_2$ = Total Distance

Traveling opposite directions for same amount of time

$D_1 - D_2$ = Further Distance

Travel same direction for same amount of time

$D_1 = D_2$

1 Leaves, then later other leaves & catches up (same direction, different times)

	Distance	Rate	Time
Thing 1			
Thing 2			

Multiply each rate & time & fill in distance column

Distance Set Up

Setting Up Mixture Problems

1. Size of chart: **4x4**

2. **Add** down for the **Mixture** row

3. **Multiply** across for the **Total** column

4. The equation is **made from the last box**

	Value ($/%)	Amount	Total
Thing 1			
Thing 2			
Mixture (Goal)			

• thing 1 total + thing 2 total = mixture total

mixture value• mixture amount = mixture total

top line = bottom line!

Mixture Problem Set up

6. The $599.99 stereo that Frank wants to buy is on sale for 33% off. If Frank only has $450 with him and sales tax is 6.5% does he have enough money to buy the stereo?

$$O - O(\%) = Sale$$
$$599.99 - 599.99(.33) = Sale$$
$$599.99 - 198. = sale$$
$$401.99 = Sale$$

$$O + O(\%) = final$$
$$401.99 + 401.99(.065) = final$$
$$401.99 + 26.13 = final$$
$$\$ 428.12 = final$$

final price = $428.12
YES!!

Percent of Change Problem

7. Joan has $30,000 to invest. If she earns $3,380 in interest after 2 years, at what rate did she invest her money?

$$I = prt$$

$$I = 3,380$$
$$P = 30,000$$
$$r = x$$
$$t = 2$$

$$3380 = 30000(x)(2)$$
$$\frac{3380}{60,000} = \frac{60,000 x}{60,000}$$
$$x = .0563$$
$$r = 5.63\%$$

rate = 5.63%

Simple Interest problem

Your uncle walks in, jingling the coins in his pocket. He grins at you and tells you that you can have all the coins if you can figure out how many of each kind of coin he is carrying. You're not too interested until he tells you that he's been collecting those gold-tone one-dollar coins. The twenty-six coins in his pocket are all dollars and quarters, and they add up to seventeen dollars in value. How many of each coin does he have?

	Value	Number	Total
Dollar	1.00	x	1x
Quarter	0.25	26-x	.25(26-x)

14 ←
12 ←

3+ 3

Total $$ ___ $17 ___

$$1x + .25(26-x) = 17$$
$$1x + 6.5 - .25x = 17$$
$$.75x + 6.5 = 17$$
$$.75x = 10.5$$
$$\frac{.75}{.75} \quad \frac{10.5}{.75}$$
$$x = 14$$

14 Dollar Coins
12 Quarters

#13 Coin Problem

Jamie left home on his bicycle for a long-distance ride. Merci left 3 hours later on her motorcycle carrying his lunch. Merci traveled at 42 mph and caught up to Jamie in 1.5 hours. How fast was Jamie traveling?

	Distance	Rate	Time
Jamie	4.5x	x	4.5 (3+1.5)
Merci	63 (42*1,5)	42	1.5

Which type of Distance problem is this?

$D_1 + D_2 =$ *Total Distance*
$D_1 - D_2 =$ *Further Distance*
$D_1 = D_2$

$$4.5x = 63$$
$$x = 14$$

**Jamie is biking
    14 mph**

#14 Distance Problem

4

How many pounds of a Thai cinnamon that costs $11 per pound should be mixed with 12 pounds of Indonesian cinnamon which costs $19 per pound to obtain a blend of cinnamon that can sell for $17 per pound.

	Cost	Pounds	Total
Indonesian	$19	12	228
Thai	$11	x	11x
Mixture	$17	x + 12	228 + 11x / 17(x + 12)

$$228 + 11x = 17(x + 12)$$
$$228 + 11x = 17x + 204$$
$$\underline{-11x \quad -11x}$$
$$228 = 6x + 204$$
$$\underline{-204 \qquad -204}$$
$$\frac{24}{6} = \frac{6x}{6}$$
$$\boxed{4 = x}$$

4 pounds of Thai Cinnamon

#15 Mixture Problem