Name _____ Elementary to Algebra
Date _____ Class #8

Chapter 3.2– Application Problems

Quality – Accuracy – Transfer – 100%

Section 1. Number Problems: Writing "Let" Statements

1. Five is subtracted from 6 times a number, the result is 13. Find the number.

X = the number = 3

$6x - 5 = 13$
$+5 \quad +5$
$6x = 18$
$x = 3$

2. One number is 5 less than 3 times a second number. Their sum is 43. Find the numbers.

X = One number = 31

(43 - x) = Second number = 12

$x = 3(43 - x) - 5$
$x = 129 - 3x - 5$
$x = 124 - 3x$
$+3x \quad +3x$
$4x = 124$
$x = 31$

3. The sum of two facing pages in an open book is 145. What are the page numbers?

X = 1st Page = 72

(x+1) = 2nd Page = 73

$x + (x+1) = 145$
$x + x + 1 = 145$
$2x + x = 145$
$-x \quad -1$
$2x = 144$
$x = 72$

$72 + 73 = 145$
$145 = 145$

4.

$72 + (72+1) = 145$
$72 + 73 = 145$
$145 = 145$

Section 2. C-V-S Problems:

1. C-V-S Problems: The C-V-S stands for: Constant + Variable = Sum

2. In each of the following, identify the Constant and the Variable and write an equation to solve for the unknown. Be sure to write and label a formal "Let" Statement.

a. Tom and Nancy formed a company that produced sneakers. The will manufacture 1200 pair of sneakers this week. Each week after this, then plan to increase production by 550 pair until weekly production tops out at 4500 pairs. How long will it take them to reach this goal?

X = Weeks = 6

$1200 + 550x = 4500$
$-1200 \quad -1200$
$550x = 3300$
$x = 6$

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b. Wes is moving. He plans to rent a track for one day for make the move. The cost of renting the truck is $60 per day plus 40 cents per mile. Find the maximum distance that Wes can move with the truck if he has $92 to spend on the move.

X = Miles

$60 + .40X = 92$

$-60 \quad -60$

$.40X = 32$

$X = 80$ miles

c. Mickey recently graduated from college and is offered a position with a medical supplies sales group. In the first year, he is offered a choice of salary options. Option 1 is a base salary of $450 per week and a 3% commission on everything that he sells. Option 2 is a straight 10% commission on all sales.

X = Sales Option 1 $450 + .03X$

Option 2 $.10X$

What is the dollar amount in sales per week, that Mickey would have to generate for both plans to be even?

$450 + .03X = .10X$ $X = 6428.57$

$-.03X \quad -.03X$

$450 = .07X$

If he is certain that he can average $8000 per week in sales, which would be the better option to select?

$450 + .03(8000)$ $.10(8000)$

$450 + 240$ $= 800$

$= 690$

Also Under the Heading of C-V-S Question:

Percent Increase and Decrease Problems. Write the proper equation to show the result.

3. At a beachfront hotel, the cost for renting a water bike is $20 per ½ hour which includes a 7 ½% sales tax. Find the cost of the rental before the tax is added on.

4. In 2005, an insurance salesman had a salary increase of 18% over his 2004 salary. If his 2005 salary is projected to be $43,000, what was his 2004 salary?