Algebra 1: Unit 3 Problem Set C

Mr. Chamberlain

Name _____

Date _____ Period _____

REMEMBER FOLKS… YOU CAN E-MAIL YOUR QUESTIONS TO ME!!

1. In honor of the 25th anniversary of Carla's department store, everything was 25% off. Jasmine bought a jacket during the sale for $45. What was the original price of the jacket? Define a variable, write an equation and solve it.

Several ways to see this one…

P is the Original Price

1) **The sale price plus 25% of p is equal to p… so** $45 + .25p = p$
2) **75% of the original price = the sale price… so** $.75p = 45$
3) **Or you can set up a proportion…** $\frac{75}{100} = \frac{45}{p}$

2. Fred, the newspaper distributor, collected all the dimes, nickels and quarters from one of his newspaper vending machines. He gathered twice as many dimes as quarters, and two more nickels than quarters. He collected a total of $22.60. How many coins did Fred take from the machine?

Careful with this one, you need to distinguish between coin count and coin value. We will have discussed this one in class.

If:
q is the # of quarters
d is the # of dimes
n is the # of nickels
then
2q can also be the # of dimes
q+2 can be the # of nickels

So… $q + d + n = 22.60$??

No way, you albatross you!! Try...

$.25q + .10d + .05n = 22.60$

(this accounts for the "value" of the coins) So... SUBSTITUTION!!

$.25q + .10(2q) + .05(q + 2) = 22.60$

3. Last Friday night, 2000 tickets were sold at the high school football game. Adult tickets were sold for $7.50 and student tickets for $5.00. The total revenue was $11,625. How many student tickets were sold?

Ask yourself… **What do you know?** **What DON'T you know?**	**So…**	**If *s* student tickets were sold…** **THEN (2000-*s*) adult tickets were sold** **So…** $5s + 7.50(2000 - s) = 11,625$ **If *a* adult tickets were sold…** **THEN (2000-*a*) student tickets were sold** **So…** $5(2000 - a) + 7.50a = 11,625$

4. Use separate notebook paper to show all work and check answers.
Solve for the indicated variable:

a) $\frac{3}{5}y = -9$

Hint: Mult both sides by 5

b) $\frac{2d+3}{8} = -2$

Hint: Mult both sides by 8

c) $\frac{x}{2} + \frac{x}{3} = 25$

d) $\frac{1}{2}x + \frac{1}{3}x = 25$

Hint: c & d are the same problem… mult both sides by 6 OR add the coefficients!

e) $\frac{a}{-6} + 5 = 2$

Ans: a=18

f) $2x - 5(x-3) = 2(x-10)$

Ans:
$$2x - 5x + 15 = 2x - 20$$
$$x = 7$$

5. Write a generic formula for the height (***h***) of a rectangular prism, in terms of the volume, length and width. Use your formula to determine the height of a box whose volume is 756 in^3 and whose length and width are 9 and 12 inches respectively.

$V = lwh$

Solve for h!

6. Amy and Jean Marie leave Morristown driving in opposite directions. Amy's average speed is 5 miles per hour faster than Jean Marie's average speed. In four hours they are 476 miles apart. What is each driver's average speed?

What do you know? 4 hours, 476 miles
What DON'T you know? The speeds in mph

a = Amy's speed
j = Jean Marie's speed or j = a – 5

$4a + 4j = 476$

So...

$4a + 4(a-5) = 476$

just simplify and solve!! :)

7. Four consecutive odd numbers have a sum of 56. What is the product of the first and third numbers?

w first number
x second number
y third number
z fourth number **so…** $w+x+y+z=56$ **YUK!!!**

How about? $w+(w+2)+(w+4)+(w+6)=56$ **YUMMY!!**

8. Four less than 5 times a number is 12. Find the number.

This is the equation: $5n-4=12$

9. One half of a number decreased by two-thirds is 2 less than one-fifth of the number. Write an equation and solve to find the number.

This is the equation: $\frac{1}{2}x-\frac{2}{3}=\frac{1}{5}x-2$

Answer: $x=-\frac{40}{9}$

Look at the solution check!!

$$\frac{1}{2}\left(-\frac{40}{9}\right)-\frac{2}{3}=\frac{1}{5}\left(-\frac{40}{9}\right)-2$$

$$\left(-\frac{20}{9}\right)-\frac{6}{9}=\left(-\frac{8}{9}\right)-\frac{18}{9}$$

Woo-hoo!!

$$-\frac{26}{9}=-\frac{26}{9}$$

That's algebra, baby!!