Week 8 Algebra 1 Assignment:

Day 1: pp. 149-150 #1-27 odd
Day 2: pp. 152-153 #1-17 odd, 21-24
Day 3: p. 156 #1-23 odd, 28-32
Day 4: pp. 161-162 #3-17 odd (5 steps)
Day 5: pp. 161-162 #1, 2, 6, 8,10, 16 (5 steps)

Notes on Assignment:

Pages 149-150:

Note: This is a very important section. It puts together all of the equation solving types that we have learned. Be careful not to skip steps and to show your work!

Work to show:

For all of these problems follow the following steps:

1. Clear all ( ) by using the distributive property.
2. Get the variable terms on the same side of the equation by adding or subtracting. (Moving the smaller one will lessen the number of negatives that you have to deal with.)
3. Isolate the variable term (i.e. get it alone on one side).
4. Multiply or divide to solve.

**Note: Combine like terms on the same side of the equals sign at any time.

#5: Normally we would move the 3x since it is smaller, but since there is no other term on the side with the 3x, it will save us a step if we move the 5x by subtracting it from both sides. Don't lose the negative in front of the 2! The sign in front of a number *belongs* to the number!

#7: Combine the like terms on the right before getting the variable terms on the same side. Also, since there is no constant (number) term on the right, it makes sense to move the variable term on the left side over to the right side after you clear the ( ). Also note that when you multiply through by the 4, you can change the (x -9) to (x + -9) before you multiply if you want, or you can mentally remember that it is a negative 9 since there is a "-" in front of it.

#9: Combine the like terms on the left before getting the variable terms on the same side.

#15: Combine the like terms on the left before getting the variable terms on the same side.

#17: Put a 1 in front of the second set of ( ). If you want to, change the subtraction into "plus a negative" (i.e. + -1). You have to multiply the first ( ) through by the 8, then the second set of ( ) through by the -1. Make sure to combine like terms before you work on getting the variable terms on the same side.

#19: Since the most decimal places that any of these numbers has is 2 places, multiply through both sides by 100 (the 2 zeros are because there are 2 places). Note: You can do this problem as it is and just work with the decimals if you want to.

#21: You are solving for x, so get all the terms with x's in them on the left and all of the other terms on the right. It may help to put 1's in front of the n's and m's that have no coefficients.

#23: Isolate the x-term by adding r to both sides. Then divide to solve.

#25: We have division by r on the left side. Undo this by multiplying both sides by r.

#27: This is a 5-step word problem. Remember that step 2 is the same for all problems involving consecutive integers:

Let x = the first integer.
x + 1 = the next consecutive integer.

Pages 152-153:

Work to show:

#3-17: Write down the simplified absolute value equation, the 2 resulting equations connected by the word "or" and then solve the equations. Circle your final answers which are connected with "or."

#1: To graph +/- 5 means to put a dot on the number line at 5 and a dot on the number line at -5.

#3-17: For all of these problems, remember what we said about "stuff." Use the following steps to solve the absolute value equations:

1. Simplify what is inside the absolute value brackets if possible.
2. Isolate the absolute value brackets.
3. Write 2 equations.
4. Solve each equation separately.

#3: The absolute value of the "stuff" equals 7. That means the "stuff" must work out to be a 7 or -7. Set the "stuff" (x+5) equal to both and solve the equations separately:

$$|x+5| = 7$$
$$x+5 = 7 \text{ or } x+5 = -7$$
$$x+5-5=7-5 \text{ or } x+5-5 = -7-5$$
$$x = 2 \text{ or } x = -12$$

#5: Before you write your 2 equations, you must isolate the absolute value brackets by subtracting 2 from both sides. That will leave you with $|x+1| = 6$. Now write you 2 equations and solve each of them.

#11: Get rid of the -9 first by adding 9 to both sides before writing your 2 equations.

#15: You may want to put the $|12x-5|$ on the left and the 19 on the right. You can always switch sides in an equation.

#17: Combine your like terms inside the absolute value brackets first.

#21: Simplify what is inside the | | before "cleaning" off the sign.

#22: Find each individual absolute value first and then multiply them together.

#23: Simplify what is inside the | | before "cleaning" off the sign.

#24: Find each individual absolute value first and then multiply them together.

Pages 156:

Work to show:

#1-23: Write the equation down. Write your LCM (or power of 10) down beside each term and then do any canceling (or moving of the decimal point). Continue solving the equation, showing the operations being done to each side as you solve the equation.

#28-32: Show work

Note: Whenever we have an equation that involves fractions, we can clear the fractions by multiplying both sides of the equation by the Least Common Multiple of the denominators. (This is the same thing as the Least Common Denominator.)

Whenever we have an equation that involves decimals, we can clear the decimals by multiplying both sides of the equation by the power of 10 needed to make all of the decimal numbers into integers.

#1: You have a 2 and a 4 in the denominators. Multiply both sides by 4.

#3: You have a 9 and a 3 in the denominators. Multiply both sides by 9. In doing this, you end up multiplying each term by 9, so you can go a head and write the 9 beside each term, cancel, and solve the equation.

$$\frac{2x}{9}+\frac{1}{3}=5$$
$$\frac{(9)2x}{9}+\frac{(9)1}{3}=5(9)$$
$$2x+3=45$$
$$2x+3-3=45-3$$
$$2x=42$$
$$\frac{2x}{2}=\frac{42}{2}$$
$$x=21$$

#11: Put ( ) around the x + 2 first. Then multiply through by 9.

#13: You have 2 numbers that are decimals to the hundredths place (i.e. 2 decimal places). Multiply through by 100 to clear all of the decimals:

$$1.4y+0.09y=1.49$$
$$(100)1.4y+(100)0.09y=(100)1.49$$
$$140y+9y=149$$
$$etc.$$

#17: Before you get started, put ( ) around the numerators of each fractions. Your common denominator (LCM) is 8. Multiply all the way through on both sides by 8 to get:

$$\frac{(a-3)}{2}-\frac{(a+3)}{4}+\frac{a}{8}=6$$
$$\frac{(8)(a-3)}{2}-\frac{(8)(a+3)}{4}+\frac{(8)a}{8}=(8)6$$

Now cancel the denominators and continue with the problem:

$$\frac{(8)(a-3)}{2}-\frac{(8)(a+3)}{4}+\frac{(8)a}{8}=(8)6$$
$$4(a-3)-2(a+3)+1a=48$$
$$etc.$$

#19: Put ( ) around the 3m-1 first.

$$\frac{107}{6} = \frac{7m}{2} - \frac{(3m-1)}{3}$$
$$\frac{(6)107}{6} = \frac{(6)7m}{2} - \frac{(6)(3m-1)}{3}$$
$$107 = 21m - 2(3m-1)$$
etc.

#21: Multiply both sides by 6rn to solve for P.

#23: Put ( ) around the Ps+q first. Multiply through by ms to clear all denominators. Then get the P-terms together on one side. Combine the P-terms and then isolate the P-term. Finish solving.

#28-32: These problems are designed to remind you what the words "simplify," "evaluate," and "solve" mean, and what types of problems they are appropriate for.

Pages 161-162:

Work to show:

#1-10: These are number/value problems. You are to use the 5-step process that we learned in class. This is not the same as what is in the textbook. The 5 steps should be numbered, and they include the following:

1. **Find**: (Write down what you are trying to find.)
2. **Let statement:** (Establish the variable being used. If you have more than one quantity, always start with the one you know the least about.) For number/value problems, the let statements will have to do with the number of each type of coin.
3. **Equation** (Translate the information not yet used into an equation.) For number/value problems, the equation will have to do with the value of the collection of coins.
4. **Solution** (When you finish solving the equation, circle your solution. If you have more than one quantity listed in step 2, write down what they equal as well.)
5. **Conclusion** (Write a sentence answering what you were told to find.)

#11: 5 step word problem

#12-17: These are interest problems. You are to use the 5-step process that we learned in class. This is not the same as what is in the textbook. The 5 steps should be numbered, and they include the following:

1. **Find**: (Write down what you are trying to find.)
2. **Buckets**: Draw a bucket for each account. Add the buckets together to get the total interest bucket. In each bucket, put the principal, interest rate, and time (in years).

3. **Equation** Multiply the buckets in your equation.
4. **Solution** (When you finish solving the equation, circle your solution. If you have more than one quantity listed in step 2, write down what they equal as well.)
5. **Conclusion** (Write a sentence answering what you were told to find.)

#1: You are finding the number of pennies, nickels, and dollars. For your let statement, let x = the number of nickels, since you know nothing about the number of nickels. Write down how you will represent the number of pennies and dollar bills. For the equation, you need to add the value of all the money to get the total of $9.96. So, take 5¢ times the number of nickels, 1¢ times the number of pennies, and 100¢ times the number of dollars. These amounts should add to 996¢. Notice that the entire problem is done in cents so we do not have to involve decimal numbers.

#2: Since all of the amounts are for dollars, you can do the problem in dollars instead of cents.

#5: It doesn't matter whether you let x = the number of dimes or nickels, because you don't know anything about either one, except that there are 34 coins all together. If you let x = the number of nickels, then how do you represent the number of dimes if you have a total of 34 coins? If you don't know, ask what you would do if you knew there were 12 nickels (for example) and 34 coins all together. Do the same but with x nickels.

#7: The value of the coins does not come into play in this problem. It is strictly about the number of coins. Write your let statements and then use the fact that there are 34 coins total to get your equation.

#8: Since you are finding the number of rolls, you don't need to consider how much each coin is worth, but how much each *roll* is worth. Take $10 times the number of quarter rolls, $5 times the number of dime rolls, and $2 times the number of nickel rolls.

#9: You are asked only to find the number of each type of coin, not how many dollar bills there are. But, you need to include the number of dollar bills in step 2 so that you can work the problem. There is something else that's a bit tricky with this problem. The number of dimes depends on the number of dollars and the number of quarters depends on the number of dimes. You should let x = the number of dollars. Then write how you would show the number of dimes. When it comes to showing the representation for the number of quarters, you will need to take ½ times the number of *dimes*, not dollars. You will end up with a fraction in your equation. Remember what you did in the last section and multiply through the equation to clear the fraction.

#11: This is not a number/value problem or an interest problem. It's more like a simple number problem. You have 3 amounts that must total $22,500. Represent the 3 amounts in step 2, and then add them to get $22,500.

#13: For this problem, we have buckets that look like this:

1 5% x	+	1 7% x + 500	=	$515

The 7% bucket has x+500 in it because there is $500 more invested in the 7% account than in the 5% account. Now multiply the buckets and write your equation.

$$(1)(.05)(x)+(1)(.07)(x+500)=515$$
$$.05x+.07(x+500)=515$$

Clear the parentheses:
$$.05x+.07x+35=515$$

Multiply through by 100 to clear the decimals:
$$(100).05x+(100).07x+(100)35=(100)515$$
$$5x+7x+3500=51{,}500$$

Finish solving the equation.

#15: Your dollar amounts go in the bottom of your buckets, but be careful with the percentage rates. You can write x and x-2% in your buckets, but be careful when you put them into your equation. Remember that the percent needs to be written in decimal form in your equation. Thus, when you write x-2% you need to really write x - .02 instead. Also, when you find out what x is, it will be the decimal form of the interest rate, so you will have to move the decimal point over 2 places to change it to a percentage.

#16: This problem also has the variable as the interest rate. After you find out what x is, it will be the decimal form of the interest rate, so you will have to move the decimal point over 2 places to change it to a percentage.

#17: For this problem, your variable will be the time. Remember that the time is in years. So your buckets will look like this:

x 12% $1800	+	2x 9% $2500	=	$499.50