Week 9 Algebra 1 Assignment:

Day 1: pp. 167-168 #1-23 odd, 28-35 (5-step word problems)
Day 2: pp. 171-173 #1-9 odd, 13-23 odd (5-step word problems)
Day 3: pp. 178-179 #1-29 odd, 31-38
Day 4: Chapter 4 test
Day 5: pp. 184-185 #1-10, 11-31 odd, 36-40

Notes on Assignment:

Pages 167-168:

Work to show:
#1-9: Answers only.
#11-23: These are 5-step word problems.

#1-9: The equation to use is listed at the top of the problems. It is the formula $r \cdot t = d$. If you are given r and t, all you have to do is multiply. If you are given d, you will have to do division to find the missing amount. This is because we can solve the equation for r or for t and get:

$$\begin{aligned} r \cdot t &= d \\ \frac{r \cdot t}{r} &= \frac{d}{r} \\ t &= \frac{d}{r} \end{aligned} \quad \text{and} \quad \begin{aligned} r \cdot t &= d \\ \frac{r \cdot t}{t} &= \frac{d}{t} \\ r &= \frac{d}{t} \end{aligned}$$

#11: This is not a 5-step word problem. You are just supposed to use the distance formula to find his distance. Write the formula down, fill in what you are given, and solve.

#13: This is not a 5-step word problem. You are just supposed to use the distance formula to find his distance. Write the formula down, fill in what you are given, and solve.

Note for #15-23: These are all motion problems. They will be one of two types:

$$d_1 = d_2$$
or
$$d_1 + d_2 = d_T$$

You are to use the 5-step process that we learned in class. The 5 steps should be numbered, and they include the following:

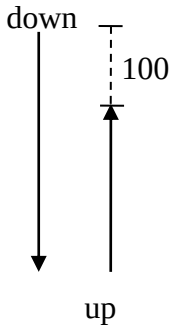
1. **Find:** Write down what you are trying to find.
2. **Chart and picture:** Along the top of the chart you always put the distance formula $r \cdot t = d$. The contents of the r and t columns come from the problem, but the d column comes only from the chart. When you finish filling in the d column, put those distances on your picture.
3. **Equation:** The equation will be one of the 2 listed above.
4. **Solution:** When you finish solving the equation, circle your solution. If you have more than one quantity to find, write down what they equal as well.
5. **Conclusion:** Write a sentence answering what you were told to find.

#15: You have people starting from the same place but traveling in opposite directions. This is going to be $d_1 + d_2 = d_T$. You are given values for the rates of both, so put those numbers in the r column. You don't know how long they travel, but you do know that they travel for the same amount of time, so put x in the time column for each. Now, looking just at your table, multiply the rate times the time and fill in your distance column. Place these distances on your picture. Your total distance is 24 miles, as that is how far apart they will be. Write your equation and solve.

#17: This is a "catch up" problem.

#19: Knot is a rate of speed. Use it in your r column. Also, don't put 4 and 5 in for time. You can tell by the times listed that one boat leaves 1 hour after the first boat. So, if you let x be the time for the 1st boat, then the 2nd boat travels x-1. If you let x be the time for the 2nd boat, then the 1st boat travels x+1. Either combination will work. This is also a "catch up" problem.

#21: This sounds like a round trip problem but it is not. The picture looks like this:



This is a $d_1 + d_2 = d_T$ problem. Fill in your chart and continue.

#23: These trains are starting apart and coming together. Draw the picture and then make your chart.

#28: You must get a common denominator for 14 and 8.

#29: Since this is an equation, you can multiply through both sides of the equation by the common denominator of 14 and 8 to clear the fractions.

#30: You must get a common denominator in order to add the fractions together.

#31: Since this is an equation, you can multiply through both sides of the equation by the common denominator to clear the fractions.

#32: This is an expression. All you can do is clear the ( ) and combine any like terms.

#33: This is an equation. Follow the steps we have learned to solve it.

#34: Combine like terms.

#35: Solve the equation using the steps we have learned.

Pages 171-173:

Work to show:

#1-9: Answers only is ok.
#13-23: These are 5-step word problems.

#1-5: The amount of salt is equal to the amount of mixture times the percent of salt. (Note that the percent has already been changed to a decimal for you.)

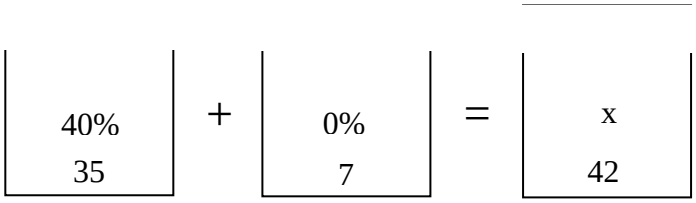
#7: To find the total value, you must multiply the number of items times the value of each.

#9: This is like #1-5, but it is not salt, but just an "ingredient."

Note for #13-23: These are all mixture problems. Some will deal with concentrations and some will deal with making mixes of various items. You are to use the 5-step process that we learned in class. The 5 steps should be numbered, and they include the following:

6. **Find:** Write down what you are trying to find.
7. **Buckets:** Draw buckets to represent each quantity being mixed. In the bottom of the bucket, put how much of the quantity you have. In the top of the bucket, put either the % concentration or the price per pound.
8. **Equation:** The equation comes from multiplying the buckets.
9. **Solution:** When you finish solving the equation, circle your solution. If you have more than one quantity to find, write down what they equal as well.
10. **Conclusion:** Write a sentence answering what you were told to find.

#13: Make a bucket for the 40% acid and a bucket for the water. Add them together to get a bucket of the mix. If you are adding pure water, it is 0% acid, so put 0% for the concentration in the water bucket. For your mixture bucket you know that the amount is 42, since you are adding 35 gallons and 7 gallons. For the concentration you must put x. Your buckets look like this:



The equation comes from multiplying the buckets to get: $.40(35)+0(7)=42x$

Solve this equation, and remember that x is the decimal form of a percent. Change it to a percent for your final answer.

#15: Put your amounts in the bottom of the buckets. You know that there are 20 pounds in the mix so that goes in your last bucket. For the other buckets you will have to use x and 20-x since they add to 20. Put your price per pound in the top of each bucket. Multiply the buckets for your equation.

#17: This is done the same way as #15.

#19: Remember that water is 0% salt. You have 10 gallons in the bottom of the 30% bucket and x in the bottom of your water bucket. Add these together to put in the bottom of your mix bucket.

#21: The concentration of pure hydrochloric acid is 100%.

Pages 178-179:

Work to show:

#1-30: Show work for solving these equations.
#31-38: These are 5-step problems.

Chapter Review – no notes.

Chapter 4 test:

The test consists of 2 parts – 20 equations to solve and 4 word problems.

Solving equations: You should be able to solve equations that:

- have ( ) that need to be cleared (Use the Distributive Property.)
- have variable terms on both sides of the = (Get them on the same side.)
- have fractions in them (Multiply through by the LCM to clear the fractions.)
- have decimals in them (Multiply through by a power of 10 to clear the decimals.)
- absolute values in them (Isolate the absolute value and then write 2 equations and solve.
- have more than one variable in them. (Treat them all as numbers except for the variable you are solving for.)

Word Problems: You will have to do 4 of the 5 types that we have studied. They all are to be done with 5 steps. Step 2 is the only one that changes. Here are the types and what step 2 should contain:

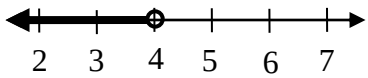
- Number problems (step 2 is Let statements)
- Coin problems (step 2 is Let statements regarding the # of coins and step 3 is the equation using the value of the coins.)
- Motion problems (step 2 is a chart and picture)
- Interest problems (step 2 has buckets)
- Mixture problems (step 2 has buckets)

Pages 184-185:

Work to show:

#1-10: Answers only
#11-29: Number line and graph for each problem.
#31: Four answers
#CR: Definitions

#11-31: Draw a number line that includes the number in your problem. (You do not need to start your number line at 0.) If the inequality is < or > then there is an open circle at that place on the number line. If it is ≥ or ≤ then the circle is colored in, because it includes the number. Decide which side of the open circle or closed circle that you are going to color. To decide this, put some values in for x and see which side they fall on. Here is the answer for #11:



#13: If x does not equal 5, it can equal everything *except* 5.

#27-29: Do these the same way you did the previous problems, only put both inequalities on the same number line.

#31: The slash translates to “is not.”

#36-40: These can be found in various spots in your text, or in the glossary which starts on page 568.