Week 20 Algebra 1 Assignment:

Day 1: pp. 382-383 #2-20 even, 23-27
Day 2: pp. 385-386 #2-18 even, 21-25
Day 3: pp. 388-389 #2-24 even, 27-29
Day 4: pp. 392-393 #1-37 odd
Day 5: Chapter 9 test

Notes on Assignment:

Pages 382-383:

General notes for this section: When there is a coefficient on the 1st term of the trinomial other than 1, these are backwards FOIL problems, but you cannot use the shortcut. Write down your ( )( ). The first spots in each ( )( ) must multiply to give you the first term of the trinomial and the last spots in each ( )( ) must multiply to give you the last term of the trinomial. Try different combinations of these until you can get the O + I to give you the middle term of your trinomial.

Example: Factor: $3x^2 - 7x - 20$.

1. Write your parentheses like this: ( )( ).
2. Your only choice for the first spots is $3x$ and x. Put these in to get $(3x \quad)(x \quad)$.
3. Your choices for the last spots must multiply to give you -20. Your choices are:

-1, 20	-2, 10	-4, 5
1, 20	2, -10	4, -5
-20, 1	-10, 2	-5, 4
20, -1	10, -2	5, -4

Note: You need to consider the *order* of the terms as well as the *signs*.

*Try each combination in $(3x \quad)(x \quad)$ until your O + I gives you the middle term, which is $-7x$.

4. Check your answer by running through FOIL.

$$(3x+5)(x-4) = 3x^2 - 7x - 20$$

Work to show:

#2-20: It would be helpful to draw the sight lines for O and I, but I will make that optional.
#23-25: Show work needed
#26: 5-step word problem

#6: You have 2 choices for the $9x^2$. You can use 9x and 1x or you can use 3x and 3x. For the last term you also have 2 choices, 1 and 25, or 5 and 5. Since both the first and last terms of the trinomial are perfect squares, I would suggest trying the 3x and 3x and the 5 and 5.

#8-10: Always look for a GCF to pull out first! Then look at what is left.

#12-20: A few of these problems will require you to pull out the GCF first. Always do that first, and then factor the resulting polynomial if you can.

#25: This is long division! Refer to week 18's assignment notes if you need a refresher.

#26: This is a system of equations. You can solve it using the substitution method or the addition method.

#27: This is a 5-step word problem. Remember that motion problems require a chart and picture for step 2. At the top of your chart you write *r* x *t* = *d*. Fill in the *r* and *t* columns, and then multiply to get the *d* column. Put these distances from the *d* column onto your picture and then write your equation and solve.

Pages 385-386:

General notes for this section: These problems are done the same way as the previous section. The only difference is that both the first and last terms of the trinomials have variables in them. *The variables generally take care of themselves*. It is the coefficients that need to be figured out.

Example: Factor $2x^2 - 3xy - 14y^2$

1. Write your parentheses like this: (   )(   ).
2. Your only choice for the first spots is $2x$ and x. Put these in to get $(2x \quad)(x \quad)$.
3. Your choices for the last spots must each include a y. Set up your parentheses to look like this: $(2x \quad \_\_ y)(x \quad \_\_ y)$.

   You just need to decide what numbers go in front of the y's. These numbers must multiply to give you -14. Your choices are:

-1, 14	-2, 7
1, -14	2, -7
-14, 1	-7, 2
14, -1	7, -2

Note: You need to consider the *order* of the terms as well as the *signs*.

*Try each combination in ($2x$ __ y)(x __ y) until your O + I gives you the middle term, which is $-3xy$.

4. Check your answer by running through FOIL.

$$2x^2 - 3xy - 14y^2 = (2x - 7y)(x + 2y)$$

Work to show:

#2-18: It would be helpful to draw the sight lines for O and I, but I will make that optional.
#21: Graph
#22: 5-step word problem
#23-25: Show work as needed

#2: You know you need (a __b)(a __b). Try your choices of numbers that multiply to give you -12 to fill in the blanks.

#4: There will always be some old factoring methods thrown in to keep you on your toes! This is a difference of squares!

#12: Pull out the GCF first!

#21: Write the border equation, decide whether it is dotted or solid, and then graph the border. Then check a point in the *original* problem and decide which side to shade.

#22: You can do this with one variable or 2. It is a number/value problem.
One variable: Write the let statements considering the *number* of each type of coin, then write your equation considering the *value* of the coins.
Two variables: Let d and q represent the number of each type of coin. Then in your system, one of the equations will have to do with the *number* of coins, and one equation will have to do with the *value* of the coins.

#24: Long division!

#25: Backwards FOIL!

Pages 388-389:

General notes for this section: This sections puts all of our factoring methods together. Follow these guidelines whenever factoring:

1. Always look for a GCF first and factor it out if possible. Remember that the polynomial that you end up with must have the same number of terms that the original polynomial had.

2. Look at the remaining polynomial to see if it is a difference of squares or possibly a perfect square trinomial.
3. If the polynomial is a trinomial and the leading coefficient is a 1, then use the backwards FOIL shortcut method to try and factor it.
4. If the polynomial is a trinomial and the leading coefficient is not a 1, then use the backwards FOIL method with trial and error to try and factor it.
5. Continue factoring until each factor is no longer factorable (i.e. until you cannot factor any more).
6. Check your answer by multiplying your factors to see if you get back your original problem.

Work to show:

#2-24: If there is only one step to the final answer you can just write the answer, but most of these problems will have at least 2 steps of factoring. Show the first step, and then show the next step (your final answer). If your problem has more than 2 factors, then there was more than just one step of factoring and I need to see that.

#27-29: Show work as needed.

#22: Notice the "stuff" that is common. It is (m+n). Pull it out of all of all 3 terms.

#24: Factor by parts.

#27-31: When solving these equations, follow the same rules you would if you had only numbers and one variable. Treat all of the variables as constants (numbers). Isolate your q-term and then multiply or divide to solve.

#29: Multiply through the entire equations (both sides) by 12 in order to clear the fractions. Then combine your like terms and continue.

#30: On the left side, follow that hint that says to factor out the q. Then you will have q(   ) = 7. The "stuff" in the (   ) is what you will divide both sides by to solve for q.

#31: Remember that when you take the square root of both sides you must remember your ±.

Pages 392-392:

Chapter Review – no notes

Work to show:

All problems: If there is only one step to the final answer you can just write the answer, but most of these problems will have at least 2 steps of factoring. Show the first step, and then show the next step (your final answer). If your problem has more than 2 factors, then there was more than just one step of factoring and I need to see that.

Chapter 9 Test:

For the test:

- Factor out the GCF (greatest common factor) using backwards Distributive.
- Factor the difference of squares.
- Factor perfect square trinomials.
- Factor by backwards FOIL (with and without the shortcut)
- Factor completely. (This is the bulk of the test.)