Week 11 Algebra 2 Assignment:

Day 1: pp. 220-221 #1-19 odd, 25-28
Day 2: pp. 224-226 #1-15 odd, 16, 17, 19, 26-30
Day 3: pp. 229-230 #1-17 odd, 18-21, 26-30
Day 4: pp. 235-237 #1-7 odd, 8, 11, 15

Notes on Assignment:

Pages 220-221:

Work to show:

#1-19: To solve a system of equations by graphing, you must do the following:

1. Write each equation in slope-intercept form.
2. Graph each equation carefully.
3. Label each line.
4. Find the point of intersection.
5. Check the point in each of the original equations. (You can do this mentally.)

#25-28: Show any calculations needed.

#1-19: For all of these, write each equation in slope-intercept form, graph the lines, and see where they intersect. All of these solutions will be integers.

15-19: When you have a system of 2 linear equations, you will get one of the following:

1. 1 solution (The lines intersect at one point.)
2. no solution (The lines are parallel.)
3. infinitely many solutions (Both equations graph to the same line.)

#26: This is the Greatest Integer Function.

Pages 224-226:

Work to show:

#1-15: To solve a system by substitution, do the following:

1. Solve one equation for one of the variables. (Choose the easiest one.)
2. Substitute into the other equation.
3. Solve that equation.
4. Back-substitute your solution into one of the equations to solve for the other variable.
5. Check your solution.

#16-17: Answers only
#19: Show work as directed above.
#26-30: Graphs (tables optional)

Notes for this section: If neither equation is solved for one of the variables, you will need to solve one of the equations for either x or y. Look to see if there is a variable with no coefficient. That would be the easiest variable to solve for. Substitute into the other equation, solve, and then put that solution back into one of the equations to solve for the other variable. Check your solution.

If the variables drop out in the process of solving the system, and you are left with an equation that is never true (like $3 = 8$), then your lines must be parallel.
If the variables drop out in the process of solving the system, and you are left with an equation that is always true (like $7 = 7$), then your lines must be the same line.

- If there is no solution (i.e. parallel lines) we call the system inconsistent.
- If there is one solution or infinitely many solutions, we call the system consistent.

#26: Since this is the Greatest Integer Function, it will be a stair-step graph. Make a table to help figure out the pattern for the steps.

#29: You can find the point of the "V" the same way you find the vertex of a parabola.

Pages 229-230:

Work to show:

#1-17: To solve these systems by addition, you must

1. Multiply one of the equations by -1 if necessary so that either the x-terms or the y-terms are opposites.
2. Add the equations together, resulting in one variable dropping out.
3. Back-substitute to find the value of the other variable.
4. Check.

#18-21: Show work for the method indicated.
#26-30: Show work for solving.

Notes for this section: When solving by the addition method, you need to get either the x-terms or the y-terms to be exact opposites of each other so that when you add the equations that variable drops out completely. If necessary, you can multiply any equation by a constant and then replace it in your system with the new equation. Sometimes you may need to multiply both equations by different numbers in order to get exact opposites. (Note: There is often more than one option for multiplying.) After adding the equations, solve for the variable that didn't drop out, substitute back into one of the original equations to find the other variable, and then check.

- If there are infinitely many solutions we call the system dependent.
- If there is one solution or no solutions, we call the system independent.

#11: You can either multiply the bottom equation by -2 to get rid of the x-terms, or multiply the top equation by 2 to get rid of the y-terms. Either one works.

#13: You are always allowed to multiply both sides of any equation by a non-zero number without changing the solution. For this one, multiply through the top equation by 10 to clear the decimals, and then take a look at your system and decide what to do to get rid of one of the variables.

#17: Clear both equations of decimals first.

#29: Remember that absolute value equations need to be written as 2 equations.

#30: Get everything on one side of the inequality symbol. Then solve by factoring, put your critical numbers on the number line, make your "walls" and determine the sign of each factor in each interval. Decide which intervals will give you the signed product that you are looking for.

Pages 235-237:

Work to show:

All problems: These are all 5-step word problems to be done with 2 variables.

#1: The amounts in each account are your unknowns. Let x = one of them and y = the other. Put these variables in the bottom of your 2 interest buckets. One equation will come from the fact that the total amount invested is $5000. The other equation will come from multiplying the buckets.

#5: Notes on digit problems:

Let t = the tens digit — The value of the number is 10t + u.
Let u = the units digit — The value of the number with digits reversed is 10u + t.

#7: You may be tempted to use x and x – 100 for your bucket amounts, but you must use 2 variables. So, put x and y in the bottom of the buckets and then use the fact that one amount is 100 less than the other amount in your first equation.