Week 14 Algebra 2 Assignment:

Day 1: p. 285 #1-12 all, 13-19 odd
Day 2: pp. 290-291 #1-22
Day 3: pp. 294-295 #1-14
Day 4: p. 295 #15-25, p. 299 #6-9
Day 5: p. 291 #26-30, p. 295 #30-34, p. 300 #27-32

Notes on Assignment:

Page 285:

Work to show:
#1-17: Show multiplication and simplifying.

#3: You can either multiply and then simplify, or simplify and then multiply.

#4: You can write the 27 with a base of 3. Then you have multiplication with the bases the same, so you can add the exponents.

#6-9: Use distributive.

#10-12: Use FOIL.

#13-19: Look for buddies as you do the multiplying.

Pages 290-291:

Work to show:
#1-22: Write the problem and show the work needed to rationalize the denominator.
#26-30: Show work

Notes for this section: When rationalizing the denominator of a fraction where the numerator and denominator are monomials, you can do one of 3 things:

1. Automatically choose to multiply by 1 in the form of $\frac{buddy}{buddy}$.
2. Multiply by 1 in some form such that when you multiply on the bottom you will get a perfect square under the radical.
3. Simplify the radical in the denominator (if possible) and then multiply by 1 in the form of $\frac{buddy}{buddy}$. Example: Simplify $\frac{5}{\sqrt{8}}$ using each of the 3 methods.

1) Pick $\frac{buddy}{buddy}$: $\frac{5}{\sqrt{8}}\cdot\frac{\sqrt{8}}{\sqrt{8}}=\frac{5\sqrt{8}}{8}=\frac{5(2\sqrt{2})}{8}=\frac{10\sqrt{2}}{8}=\frac{5\sqrt{2}}{4}$

2) Look for perfect square on the bottom: $\frac{5}{\sqrt{8}}\cdot\frac{\sqrt{2}}{\sqrt{2}}=\frac{5\sqrt{2}}{\sqrt{16}}=\frac{5\sqrt{2}}{4}$

3) Simplify the denominator first: $\frac{5}{\sqrt{8}}=\frac{5}{2\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}=\frac{5\sqrt{2})}{2(2)}=\frac{5\sqrt{2}}{4}$

#4: Give the numerator and denominator their own radicals first.

#6: Give the numerator and denominator their own radicals first. Remember that for cubed roots you will need 3 buddies to "undo" each other.

#7: If you notice that you can simplify $\frac{5}{15}$, then I would put them under the same radical, simplify the fraction, and then give them their own radicals again and continue.

<u>Notes for this section</u>: When rationalizing the denominator of a fraction where the denominator is a binomial, you must multiply by 1 in the form of $\frac{conjugate}{conjugate}$ where the conjugate is the same binomial as the denominator, but with the opposite operation sign. (<u>Example</u>: The conjugate of $\sqrt{7}+3$ is $\sqrt{7}-3$.)

#11: Multiply by $\frac{conjugate}{conjugate}=\frac{(1-\sqrt{2})}{(1-\sqrt{2})}$. Multiply carefully, using distributive on the top and FOIL on the bottom.

#13: Think of this as $\frac{4}{20}\cdot\frac{7^{40}}{7^{29}}$.

#26-29: You can solve by factoring or the quadratic formula.

#30: Remember that the possible numbers to try must be factors of the 12. After you find one factor using synthetic division, you should be able to factor the quadratic that remains.

<u>Pages 294-295</u>:

Work to show:

#1-5: Answers only is ok.
#6-9: Show steps in solving the equations.
#10-14: Answers only is ok.
#15-25: Show steps in solving the equations.
#30-33: Graph for each
#34: Answer only

#2: Write the $\sqrt{6}$ as $\sqrt{3}\sqrt{2}$ to see what your common factor is.

#4: Factor this as the difference of squares.

#5: Factor this as a perfect square trinomial.

#6-9: To solve equations with radicals in them:

1. Get the variable terms on the same side of the equation.
2. Factor out the variable.
3. Divide both sides by the polynomial that resulted from pulling out the variable.
4. Simplify (and/or rationalize) your answer.

#10-14: Always look for a common factor first. Then, if you have a binomial, look to factor as the difference of squares. Trinomials will most likely be factored as perfect square trinomials.

#18: Clear the ( ) first.

#30-32: Make a table for these.

#33: This will be a shift of the graph in #30. Can you tell what the new vertex will be?

Pages 299-300:

Work to show:

#6-9: Show any work needed
#27-32: Show work needed to find zeros

#6-9: When you are finding the domain, ask yourself if there are any numbers that cannot be used in the function. Exclude these from your domain. For the range, ask yourself what kinds of numbers will you get out of the function if you put your domain numbers into the function.

#27-32: To find the zeros (i.e. x-intercepts) let y (or this case f(x)) equal zero and solve. Some of these will give you more than one zero.

#30: You will need to use synthetic division to find the first zero. Then you should be able to solve by factoring.