Sect/Pg	Problems	Problem Type
	REMEMBER	**NEVER use SLANT fractions in algebraic expressions! Your best study aid will be your old tests. Unless specifically omitted in the comments, any type problem from your old tests are possible problem types for the Final.**
1.1/ 11	55,59,67	**Integer Order of Operations**
1.2/ 20	41,49,61,69	**More Order of Operations**
WS#1	1,11,36,39,46	**More Order of Operations**
1.3/ 29	27,29,41,45	**Order of Operations with Exponents**
1.4/ 37	15,21,41,65,69, 75,77	**Simple Algebraic Expressions, Evaluating with Substitution, English Phrases Translated into Algebraic Expressions**
WS#2	2,3,28,60,72	**Order of Operations and Parentheses**
2.1A/ 51 (ALSO: WS#5)	11,27,39,49 From WS#5: 24 & 35	**Solve Linear (1st degree) Equations with Integers.** Unfortunately, the book does not have problems in this section that yield either All Real Numbers or No Solution as an answer. Look at WS#5 for examples of these. Remember that if the unknown, say x, "disappears" when solving, you will have one of these 2 situations. If you are left with a True Statement, say 3 = 3, then the solution is **"All Real Numbers"** since it indicates that the equation is true no matter what value is assigned to x. If you are left with a False Statement, say 3 = 5, then it indicates that no matter what value is assigned to x, that the statement is false, so there is **"NO Solution."**
WS#8	2,9,10,13,18,25,26,31,39,48,58,60	**Review Basic Linear Equations** . A good MIX of problem solving for basic first degree equations.
2.1B/51	51,53,55,57	**Word Problems: "Number Type"**
	NOTE	When **multiplying** by **LCD** in a **fraction equation** or by the correct **power** of **10** in a **decimal equation**, remember to **multiply each TERM** of **both sides** of the equation by the necessary number so that you can correctly "cancel" denominator or shift decimal point.
2.2A/59 (ALSO: WS#6)	3,9,29,37	**Solve 1st Degree Equations with Fractions:** Remember you can **multiply** both sides of the equation by the **LCD** to "remove the fractions" from the equation. The safest way is to multiply **each term** by the LCD.
2.2B&C/ 60	41,45,53	**Word Problems: "Number Type" with Fractions.** Remember that Fractions "Never stand alone" **if** the wording is a "fraction of…..". For example one-half **of** a number or variable indicates to **multiply** the number or the variable by 1/2.
2.2D/ 60	43,47,55	**Word Problems: "Geometry" with Fractions**
WS#9	2,4,10,13,17	**Word Problems: "Number Type", some with Fractions.** This is the WS that gave you the equation in the answer section so you could check your equation as well as final answer.
2.3A/ 67 (ALSO: WS#7)	1,9,15,23	**Solve Decimal Equations:** Same idea as the fractional equations... You can multiply each term by the correct multiple of 10 to "remove the decimal". Be careful to "add zero's" when needed in this process.
2.3B/ 67	29,35,41,43	**Word Problems: Percents & Decimals.** As with "fraction of" a number for 2.2B&C, if dealing with a "percent of" something, it indicates to multiply. In this case, you must FIRST change the % to a decimal by shifting the decimal 2 places to the left, then multiply in decimal form.
WS#25	1,4,11,13	**Word Problems: Percents & Decimals**
2.4A&B/ 77 **(**ALSO: WS#13)	1,7,9,19,25	**Symbolic Linear Equations: Solving for One Variable "in Terms of" or by Substitution:** Solve for the unknown cited and treat the other unknowns "like they were constants", adding, subtracting, multiplying and dividing by them as needed just like you would if they were numbers. **Warning:** You have not "solved for the given unknown if it is "in the answer" (Example: **x** = 3**x** + y is NOT solved for **x.**)
2.4C/ 78	31,45	**Symbolic Linear Equations that Require Factoring to SOLVE:** Similar to the above problems but these have more than one term left with the desired unknown once all possible terms have been combined. Have all terms that have the desired unknown on one side of the equation and all other terms on the other side of the equation. Then the desired unknown can be **factored out** as a common factor on that side. Divide both sides by the quantity left in ( ), and you will have solved for the desired unknown.

WS#27	2,5,9,30,33,44	**Intermediate Symbolic Linear Equations. Some Require Factoring to SOLVE**
2.4D/ 78	47,48	**Word Problems: "Geometry"** Draw a picture of the shape and use it to label your unknown(s). Use the information to set up an equation and solve.
2.4E/79	49, 51	**Word Problems: Percents & Decimals:** Remember that percents must be changed to decimals by shifting the decimal place 2 positions to the left. Also, remember that **"percents never stand alone"**: A percent **OF something** indicates to **multiply** the decimal equivalent times that **something**.
2.4G/78	59, 61	**Word Problems: Mixture** Try drawing a picture to indicate the percent of pure substance and the total amount in each of the given parts and the desired result. First get the total amounts of liquid or substance to balance. Next, write a combination word and algebraic expression to describe the amounts of pure substance in each part and in the result. Change to entirely algebraic equation by changing % to decimal and multiplying correctly.
2.5A/ 86	1,7,11,13	**Linear Inequalities: Notation:** Se sure you can use the "new" Number Line notation and that you can put these into Interval Notation, and vice versa.
2.5B/ 86 (ALSO: WS#19)	31,37,45,59,63	**Linear Inequalities: Solving:** Remember to keep the inequality symbol facing the same direction as you go, solving the same way you would solve a linear equation, **except**: When you **multiply or divide by a negative number,** then you **must reverse the direction of the inequality symbol**. Be able to put your answer in any of the 3 forms (Inequality, Number Line, or Interval Notation.)
2.6/94	19,23,27,29,31, 35,37,39,47	**Compound Inequalities.** Remember that "AND" means to Intersect two solution sets, i.e., only include the things that are in BOTH sets. The word "OR" means to take the union of two sets, i.e., include everything that is in either of the two sets or in both of them. Remember caution in above notes about multiplying or dividing by a negative in an inequality. In the **"Continued Inequality"** type (#47), remember you are trying to isolate x in the middle and whatever operation you do to remove other numbers must be done to ALL 3 parts of this inequality. Of course, the rule of multiplication & division by a negative applies here also.
3.1/114 (Also: WS#4)	49,51,59,63	**Polynomial Sums & Differences**. Adding and subtracting polynomials by combining like terms. Remember to distribute negative signs in front of ( )
3.2/120	5,33,49,51,53,63, 65	**Monomial Products & Quotients: USING EXPONENT RULES**
3.3A&B/127	3,9,21,25,37,55, 63,65	**Multiplying Polynomials (Includes FOIL)**
WS#10 (ALSO: WS#11)	1,9,25,42,56,60	**Multiplying Polynomials (Includes FOIL)**
WS#12	3,12,24,29,30,47	**A mixture of Multiplying and Adding Polynomials**
	WARNING**	**On the Final: Be sure to pay attention to directions as to whether you are to JUST FACTOR, or SOLVE an equation so that you do NOT confuse these problems from 3.4 - 3.7!**
3.4A&B/135	25,39,45,51,55	**FACTORING: by Common Factors & by Grouping: Greatest Common Factors** are the FIRST thing you should consider in ANY factoring problem. Remember that there will be the same number of terms inside the ( ) as there were in the original expression. **Factor by grouping** usually occrs when there are 4 terms. Remember to group 2 terms and 2 terms so that they each will have a common factor. Once this is done, you will have 2 terms, each with 2 or more factors, the factor that is a binomial in ( ) should then be common to these 2 terms so that it can be factored out: Example: $ax + bx + ay + by = x(a + b) + y(a + b) = (a + b)(x + y)$.....One term, so it is in factored form.
	REMEMBER	**If you are told to FACTOR, the answer will contain ONLY ONE TERM. For the final, all factoring problems WILL FACTOR. Be sure to FACTOR COMPLETELY!**

3.4C/135	65,71,75	**SOLVING EQUATIONS BY FACTORING (See warning above.) Answer to these problems will be in the form x=___,** (or can be put in set notation.) See 3.7A below for a reminder of the correct method.
3.5A&B/142	5,15,25,39,41	**FACTORING: Difference of Squares** (Difference of Cubes may be used for Bonus only.) Remember that a Sum of Squares will NOT factor!
3.5C/ 142	57,61,63,67	**SOLVING EQUATIONS BY FACTORING**
3.6A/150 (ALSO: WS#14)	1,17,25,39,47,53	**FACTORING: FOIL Type**
3.6B/150	57,61,67,73,77, 85,93	**FACTORING: All Methods:** Remember to always: **1.** Check for **Greatest common factor first,** once that is done... **2. Count the number of terms** to help identify the **most likely** factoring pattern: **Two terms:** Difference of squares or difference of cubes (the latter will NOT be on the Final unless it's a bonus); **Three terms:** Foil factor (or trinomial factoring.); **Four terms:** Possibly by grouping. Always factor COMPLETELY! **See warning** above. Also remember that NOT every two term or three term expression will factor.**
WS#15	1,5,24,29,40,47	**FACTORING: All Methods**
3.7A/156	1,17,27,41,53	**SOLVING EQUATIONS BY FACTORING:** These are equations that have a 2nd degree term or higher. The idea is to: **1.** get your **equation set = 0** with terms combined, etc., **2.** Then **completely factor** that expression. Once it is in factored form, **3. set each factor = 0**, since the only way a product can be 0 is for one or more of the factors to be 0. For most of these problems, these factors will either be numbers that can **not** be 0, or will be simple linear expressions that can be easily solved. **See warning** above.**
3.7B/157	55,57,59,61	**Word Problems: Not assigned.. Possible Bonus Problems.**.Equation found will be solved by factoring methods.
4.1/171 (ALSO: WS#22)	13,17,21,29,45	**Simplifying Rational Expressions (Algebraic Fractions):** Remember you can **only "cancel" factors** (things that are multiplied both top & bottom. **Hint**: This requires that there can be only **ONE term top and bottom before cancellation** can even be considered. (There is the case where there is a binomial, etc factor in the numerator and the denominator is exactly that binomial, then it can be considered as a "whole" to cancel with the binomial factor in the numerator. Of course, the reverse idea is true if the factor were in the denominator instead.) Remember proper exponent rules, and where there are **polynomials**, get these **into completely factored form** in order to simplify.
4.2/176 (ALSO: WS#24)	15,21,25,27,39	**Simplifying Rational Expressions: Multiply & Divide:** Same idea as above. Remember to **invert to multiply in the case of division before** doing any **cancellation**. Once things are in factored form and multiplied (Remember this means there will only be one term.), you can **"cancel" same factors top to bottom** whether they are in the same fraction or in a different one, as long as one is on top and the same factor is on bottom. Multiply straight across to get the final answer as one fraction; but leave these in factored form.
4.3/184 (ALSO: WS#26)	9,15,23,31,41,51, 63	**Simplifying Rational Expressions: Add & Subtract:** This is just like adding and subtracting number fractions, you must get a **common denominator** and it is very important to get the **L**east **C**ommon **D**enominator. Remember in **"creating" the LCD**, you are essentially **multiplying each fraction by an equivalent of "one"** so that the value of your expression does not change. **Warning:** Do **not** confuse this with **solving equations** that contain **fractions**. In Section 2.3, you could multiply by the LCD and remove the fractions, but **now** you are Simplifying, and **if you multiply by the LCD, you are changing the value of your expression.. BAD!**
4.4/193	1,11,15,21,47,51, 57	**Rational Addition & Subtraction where factoring is needed to find LCD, and Complex Fractions.** Remember to factor all denominators completely in order to be able to determine the LCD. Same procedure as in 4.3 above. For COMPLEX Fractions, just add together the fractions in the Big Numerator, and in the Big Denominator as you would a simple rational addition problem. Once each is written as a single fraction, then invert the fraction in the Big Denominator and multiply (since the fraction bar is the same as division). Look for common FACTORS that will cancel, then **multiply straight across** to get a single fraction.

5.1A/231	7,25,35,37,39	**Integers as Exponents with Numbers:** Exponent rules are the same even though we are now considering negative integer exponents also. The **negative exponent** just means to take the **inverse** of whatever is raised to that exponent. If everything is multiplied and/ or divided, this essentially means that you can "move" a factor with its exponent "down" or "up" in a fraction by changing the sign of its exponent. Refer to class notes for rules and examples. **Warning:** A **negative exponent** does **NOT** make the **number negative.** (Example 3 "to the -1 power" does NOT equal -3... It is equal to 1/3. Be sure to "evaluate" all numbers raised to exponents... That is, **get a number equivalent.** (Example, don't leave 5 raised to the 3rd power... This should be evaluated as 125.) Remember if there is addition or subtraction involved, (#37, 39), you must evaluate the exponent FIRST to satisfy order of operations. These two problems will then become a number fraction addition or subtraction problem, so get the LCD and proceed.
5.1B/231	43,53,57,59,71	**Integers as Exponents with Algebraic Expressions:** Same principles as above, except that you will not be able to evaluate a variable raised to a power. **NEVER leave a negative exponent** in an answer.
WS#20		Mix of problems similar to 5.1A & B.
5.1C/232	75,81,83	**Integers as Exponents with Algebraic Expressions with 2 Terms:** When more than one term is involved, then you are not in factored form. First, **change** each factor to the **correct position with a positive exponent** instead of a negative one. Now, it will probably **"look like" an addition of fractions** problem like those in 4.3. Proceed as with those problems.
5.2A/242	1,3,5,7,15	**Basic Radicals with Numbers:** These "come out of the radical exactly."
WS#3	2,6,8,11,19,20,39,53	**Basic Radicals with Numbers**
5.2B/242	23,31,35,41	**Simplifying Radicals with Numbers:** Here, "split the number into factors" so that one is a perfect square (hopefully the largest one possible.) and the other is not. Take the square root of the perfect square and multiply it on the "outside" and leave the other number "inside." If you did not find the largest perfect square the first time, you will have to repeat this process.
5.2C/243	45,51,61,69,73	**Simplifying Radicals: Rationalizing Denominators with Square & Cube Roots with Numbers Only.** To **"rationalize the denominator"** means to "remove the radical(s) from the denominator". This must be done in such a way that the **"value of the expression" is not changed.** Same concept of not changing value as we faced with fraction addition expressions, so whatever we do here to change the form will be done by **multiplying by an equivalent of "one"** so that value is not changed. The idea in both the square root and cube root case is to figure out **what to multiply the denominator by so as to "create" a perfect square or a perfect cube,** respectively, under the radicals, so that the radical can then be simplified "exactly, " thus "removing" the radical. Remember that you must multiply square root by square root and cube root by cube root, in order to be able to multiply the "insides" as desired; and you **must multiply the "top" by the same thing as the "bottom",** so that you have merely multiplied by "one."
WS#18	2,8,32,41,43	More practice with **Simplifying Radicals with Numbers**
5.3/248	1,7,9,17	**Simplifying Radicals: Sums with Numbers Only:** You will just be simplifying radicals as in 5.2B, but you will find that the results are just **like having "like terms",** like adding 2x + 5x = 7x, except the "x" is a common square root or a cube root.
WS#21	3,8,31,33	**Simplifying Radicals: Algebraic, & Rationalizing Denominators with Algebraic Square & Cube Roots: Exact Radical Problems:** Evaluating "exact radicals" with variables involved: Here we are taking square or cube roots of a variable, say x, raised to a power that will come out of the radical exactly. The square root of x raised to the n power can be written as x raised to the n/2 power; thus if n is an even number, the expression "comes out" of the radical exactly. Similarly, the cube root of x raised to the n power is x raised to the n/3 power, so in the case that n is a multiple of 3, this expression will "come out" of a cube root exactly.

5.3/248	27,29,37,55	**Simplifying Radicals with Variables If They Don't Come Out Exactly:** When we are faced with the situation of the exponent **n** not being the correct multiple to come out of the radical exactly, we pick the largest integer less than **n** that is the correct multiple, then use the exponent rule to express x raised to the **n** power as x raised to this next integer times x raised to whatever is necessary to "get back up" to "x to the **n**" (Example cube root of x raised to the 14th power: The largest integer less than 14 that is divisible by 3 is 12. Thus x to the 14th = x to the 12th times x to the 2nd. Cube root of x to the twelth is excatly x to the 12/3 or x to the 4th, and the x to the 2nd stays under the cube root. Same idea as with numbers is used for rationalizing.
5.4/254	19,35,39,43,53,59,71	**Products and Quotients of Radicals.** For products of radicals, remember that if the roots are the same and we are dealing with positive quantities, we can multiply together what is under the root. Combine this fact with a knowledge of the Distributive property and recognizing the FOIL pattern to get an initial product. Then simplify the radicals involved and remember what was learned in 5.3 about "combining like terms" to get a completely simplified answer. **Quotients of Radicals or Rationalizing with a Binomial Denominator** was covered the last day of class. Remember that no answer is simplified with a radical left in the denominator. Since these denominators are of the form A + B, or A - B, where either A or B contains a square root, we need to multiply by something that will remove the square roots. In other words, we want to end up with A^2 and B^2. We can accomplish this if we remember that (A + B)(A - B) = A^2 - B^2. There will be no "middle term" left after FOILing that will contain a square root. A + B and A - B are called **conjugates** of one another. So if the denominator is of the form A + B then we need to multiply by A - B "over " A - B so that we are not changing value (it = 1), and the desired result of removing the radical from the denominator is accomplished. Similarly if the denominator is A - B, multiply by A + B over itself.
5.7/271	3,9,13,21,29	**Scientific Notation.** Be able to convert from Ordinary Decimal to Scientific Notation and vice versa.
7.1/346 **7.5B/384**	7,17,25,29,31xxxxxxxx49 (from 7.5)	**Graphs of Lines:** You will have to identify both x- & y-intercepts. You need to find these points algebraically .... Not estimating through the graph. You will also have to find the slope of the line. You will have to graph 3 points, including the x- & y-intercept. May use the slope to find the 3rd point. or "an x,y chart". Also be able to identify equation & slope of horizontal & vertical lines. Don't forget to use a straight edge and "Connect the Dots!"
WS#17	1,5,7,8	Uses problems in 7.1 to do the following: Putting **equations** of lines into **Slope-Intercept form**; finding the **slope**; finding the **slope** of any **perpendicular** line; finding **x- and y-intercepts.**
7.3/361	1,5,13,21,23	**Graphs of Linear Inequalities in Two Variables (Shade Graphs):** (Directions will be the same as on Major Test #3 ... Plot x- & y-intercept (a 3rd point if you wish to be safer!) for the **boundary line** and then show your "Test Point" on the graph and the work for your "Test" in your problem, and shade properly.) **Remember** to use a **"dotted** boundary line" for **<** or **>** and a **solid** boundary line if the inequality is "or equal to."
7.4/371	1,5,9	**Distance Between Two Points:** In words: to find the distance between two points, do the following: Take the difference of the "x-values" and then square, do the same thing for the difference in the "y-values" then square. Add these two numbers together, then take the square root of the result. The formula is on page 364.
7.4/371	19,25,27	**Slope Between Two Points:** In words, this is Rise over Run. Given two points, take the difference in the "y-values" and divide by the difference in the "x-values", being careful to keep the same order (2nd minus 1st) on both top and bottom. The formula is on page 366.
7.5/383	3,11,19,35,39	**Writing Equations of Straight Lines:** (Be able to put into both Standard Form & Slope - Intercept Form, depending on which is requested.) Remember you need the slope and a point of the line in order to write its equation. Substitute the slope and the point into the Point-Slope Form, then simplify to the form you are instructed. Use our **WS#22** Answers to 7.5 in y=mx+b form to practice slope-intercept form and the odd problems in the book to practice Standard Form**.**

MT#2	#12, #13	**Be able to match the graph of a horizontal or vertical line to its equation and to identify its slope as on MT#2, #12 & 13.** The line drawn on the board for these problems was **horizontal,** going through the points (0,3), (1,3), (2,3) etc, so its equation was y = 3, and it had **slope 0.** For a vertical line, the equation is of the form x = c, where c is some number. This line will go through the points (c,0), (c,1), (c,2), etc. **Vertical** lines have **undefined slope** because when you use the slope formula, the "Run" = 0, so you have some number over 0, which is undefined.
11.1/598	11,23,31,33	**Systems of Linear Equations** (You will need to know **BOTH** the **Substitution** and the **Elimination by Addition** Methods) I will NOT ask you to solve a system by graphing. Remember to give your answer as an ordered pair with the x-value first and the y-value 2nd.