Cumulative Test Project Topics for Spring Semester 2019: Math 9

Please check all future efforts against the following guidelines:

1. Has each of the topics listed on the Cumulative Test Project sheet been written in red on the loose leaf pages?
2. Has the student gone to the textbook, workbook, or supplementary worksheets to find each set of directions associated with those topics and written them in pencil on the loose leaf pages?
3. Has the student completed one original example for each set of directions? Does the example reflect the type of work found on the starred examples in the notebook, or has the student used some "very minimal" example that I would never use on a test?
4. Does each loose leaf sheet have the required heading?

   Student's Legal Name Date: (e.g. January 28, 2019)

   Saint Gabriel School Grade 6, 7, or 8

5. Is the assignment being done a little each night, or is your child rushing the assignment into the last few nights before it is due?
6. Please do not sign any assignment that is not neatly completed with all work properly spaced for easy reading! A parent's signature does not make an unacceptable assignment acceptable!!!

The following topics need to be mastered for the cumulative test:

1. Identify and use Inverse Variations. Graph Inverse Variations.
2. Identify and use Inverse Variations in "Real Life" Problem Situations.
3. Identify "Excluded Values" in Rational Expressions, and Identify and Use Asymptotes to graph Rational Functions.
4. Use the Graphs of Rational Functions to represent "Real Life" Problem Situations.
5. Identify values excluded from the domain of a rational expression, and simplify rational expressions.

6. Solve "Real Life" Problem Situations that involve simplifying rational expressions.
7. Multiply and Divide Rational Expressions.
8. Solve "Real Life" Problem Situations involving multiplication and/or division of rational expressions.
9. Divide a polynomial by a monomial and a binomial.
10. Solve "Real Life" Problem Situations involving the division of a polynomial by a monomial or a binomial.
11. Add and Subtract Rational Expressions with Like Denominators.
12. Add and Subtract Rational Expressions with Unlike Denominators.
13. Solve "Real Life" Problem Situations involving the Addition and/or subtraction of various rational expressions.
14. Simplify Mixed Expressions and Complex Fractions.
15. Solve "Real Life" Problem Situations involving Mixed Expressions and Complex Fractions.
16. Solve Rational Equations.
17. Solve "Real Life" Problem Situations involving Rational Equations.
18. Identify the relationship between quantities by using points on a scatter plot.
19. Draw a "best-fit line" for a scatter plot and find the equation for the best fit line by using two points on the line to find the slope and y-intercept.
20. Use a graphic calculator to find best-fit lines using the linear regression Function.
21. Solve "real life" problem situations involving scatter plots and use the best-fit line to make predictions.
22. Analyze the characteristics of graphs of quadratic functions.
23. Graph quadratic functions by using a function table and a graphic calculator.
24. Solve "Real Life" Problem Situations involving Quadratic Functions.
25. Solve Quadratic Equations by Graphing, including "Real Life" Problem Situations.
26. Apply transformations (translations, dilations, and reflections) to quadratic functions.
27. Identify the application of transformations to quadratic functions in “real life" problem situations.
28. Solve Quadratic Equations by Completing the Square.
29. Use the "Completing the Square" method to solve "real life" problem situations involving quadratic functions.
30. Solve quadratic equations by using the quadratic formula.
31. Use the discriminant to determine the number of solutions of a quadratic equation.

32. Use the quadratic formula to solve "real life" problem situations involving quadratic equations.
33. Graph exponential functions.
34. Identify data that display exponential behavior.
35. Solve problems that involve exponential growth or exponential decay.
36. Solve "real life" problem situations involving compound interest.
37. Identify and generate geometric sequences, relating them to exponential functions.
38. Identify linear, quadratic, and exponential functions from given date.
39. Use given data to write linear, quadratic, or exponential functions that model the data.
40. Graph and analyze dilations, reflections, and translations of radical functions.
41. Simplify radical expressions by using the Product Property of Square Roots.
42. Simplify radical expressions by using the Quotient Property of Square Roots.
43. Use "conjugates" to rationalize the denominator in a radical expression.
44. Use radical expressions to solve "real life" problem situations.
45. Add, subtract, or multiply radical expressions.
46. Solve radical equations.
47. Solve radical equations with extraneous solutions.
48. Use radical equations to solve "real life" problem situations.
49. Solve and graph the solutions to absolute value equations.

50. Solve and graph the solutions to absolute value inequalities.

51. Solve "Real Life" Problem Situations involving absolute value equations and inequalities.

The students should also be able to solve word problems that involve any of the above topics. Sample types have been assigned as "problems" for homework.