Algebra 2 Unit 4 - Rational Functions & Relations

HOMEWORK POLICY: *In order to receive a 3, you must do the following (.5 off for each objective not completed):*

1) Write your name and date along with the assignment in the top margin. All of your work must be done in pencil or a black pen.
2) Every problem must be attempted to the best of your ability. Use the internet (Khan Academy) if you have problems understanding.
3) All algebraic work must be shown, and it should be neat and organized (hint: circle or underline your answers).
4) All worksheets should be checked and fully corrected using a red pen before coming to class. Go to **cindyedwards.weebly.com.**

DATE	DAILY LEARNING TARGETS & OBJECTIVES	INDEPENDENT PRACTICE (HOMEWORK)	GRADE
Thu, Jan. 16 *Day 00*	Test on Unit 3	Day 00 Factoring Review Worksheet – you must do at least 15 problems.	$\frac{}{3}$
Tue, Jan. 21 *Day 01*	Multiplying & Dividing Rational Expressions	Day 01 Multiplying and Dividing Rational Expressions Practice Due Jan 28.	$\frac{}{3}$
Thu, Jan. 23	**Algebra 2 City-wide Mid-Assessment** *Monday JAN. 27: Staff Day – NO SCHOOL*	Finish Day 01 Homework/ Work on Desmos Project Phase 2 due February 24.	✕
Tue, Jan. 28 *Day 02*	Multiplying & Dividing Rational Expressions Finding the Least Common Denominator	Day 02 Review Multiplying & Dividing & Finding the LCD	$\frac{}{3}$
Thu, Jan. 30 *Day 03*	Adding & Subtracting Rational Expressions	Day 03 Adding and Subtracting Rational Expressions Practice	$\frac{}{3}$
Mon, Feb. 3 *Day 04*	Graphing Reciprocal Functions	Day 04 Graphing Reciprocal Functions	$\frac{}{3}$
Wed, Feb. 5 *Day 05*	Graphing Rational Functions	Day 05 Graphing Rational Functions	$\frac{}{3}$
Fri, Feb. 7 *Day 06*	Variation	Day 06 Variation Functions Practice	$\frac{}{3}$
Tue, Feb. 11 *Day 07*	Solving Rational Equations	Day 07 Solving Rational Equations Practice #1	$\frac{}{3}$
Thu, Feb. 13 *Day 08*	Solving Rational Equations *Monday, Feb. 17: NO SCHOOL/PRESIDENT'S DAY*	Day 08 Solving Rational Equations Practice #2	$\frac{}{3}$
Tue, Feb. 18 *Day 09*	Unit 4 Review	Day 09 Unit 4 Test Review Worksheet	$\frac{}{3}$
Thu, Feb. 20 *Day 10*	**Test on Unit 4**	**TOTAL POINTS:**	$\frac{}{30}$

LEARNING TARGETS:

Target 1:	I CAN graph a rational function, identify its transformations, components (domain, range, zeros, intercepts), and its restrictions (vertical, horizontal asymptotes)
Target 2:	I CAN model and solve real world problems by using direct, inverse, and joint variation or a combination of direct and inverse variation.
Target 3:	I CAN add, subtract, multiply, divide, and simplify rational expressions.
Target 4:	I CAN solve equations containing rational algebraic expressions algebraically and check their solutions graphically.

UNIT 4 ENDURING UNDERSTANDINGS:

1. Rational expressions present unique limitations on practical applications.
2. Practical problems can be modeled and solved by using direct, inverse and joint variation.

UNIT 4 ESSENTIAL QUESTIONS:

1. How does the graph illustrate the unique limitations of a rational function?
2. How do you determine if a function is a model of direct or inverse variation?
3. Why are there restrictions on rational expressions, equations, and functions?
4. What real life situations model direct, inverse and joint variation?

SOL Objectives (2016):

AII.1   The student will
   a) add, subtract, multiply, divide, and simplify rational algebraic expressions;
   b) add, subtract, multiply, divide, and simplify radical expressions containing rational numbers and variables, and expressions containing rational exponents; and
   c) factor polynomials completely in one or two variables.

AII.3   The student will solve
   a) absolute value linear equations and inequalities;
   b) quadratic equations over the set of complex numbers;
   c) equations containing rational algebraic expressions; and
   d) equations containing radical expressions.

AII.6   For absolute value, square root, cube root, rational, polynomial, exponential, and logarithmic functions, the student will
   a) recognize the general shape of function families; and
   b) use knowledge of transformations to convert between equations and the corresponding graphs of functions.

AII.7   The student will investigate and analyze linear, quadratic, absolute value, square root, cube root, rational, polynomial, exponential, and logarithmic function families algebraically and graphically. Key concepts include
   a) domain, range, and continuity;
   b) intervals in which a function is increasing or decreasing;
   c) extrema;
   d) zeros;
   e) intercepts;
   f) values of a function for elements in its domain;
   g) connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs;
   h) end behavior;
   i) vertical and horizontal asymptotes;
   composition of functions algebraically and graphicallyGraphing calculators will be used as a tool to assist in the investigation of functions.

AII.10   The student will represent and solve problems, including practical problems, involving inverse variation, joint variation, and a combination of direct and inverse variations.

PREREQUISITE LEARNING TARGETS:

1. I CAN factor any polynomial that is not prime.
2. I CAN add, subtract, multiply, and divide fractions.
3. I CAN find a common denominator
4. I CAN solve any linear or quadratic equation.
5. I CAN never divide by zero!
6. I CAN identify the reciprocal function family member and state its domain and range.
7. I CAN use polynomial long division.