



**Plainfield Public Schools  
Mathematics  
Unit Planning Organizer**

<b>Grade/Course</b>	Algebra 2
<b>Unit of Study</b>	Expressions and Equations 1
<b>Pacing</b>	7 weeks / 2 weeks for reteaching or enrichment
<b>Dates</b>	October 26 – December 11, 2015

**Standards for Mathematical Practice**

- MP1. Make sense of problems and persevere in solving them.
- MP2. Reason abstractly and quantitatively.
- MP3. Construct viable arguments and critique the reasoning of others.
- MP4. Model with mathematics.
- MP5. Use appropriate tools strategically.
- MP6. Attend to precision.
- MP7. Look for and make use of structure.
- MP8. Look for and express regularity in repeated reasoning.

### UNIT STANDARDS

**N.RN.1** Explain how the definition of the meaning of rational exponents those values, allowing for a notation for radicals in terms of rational follows from extending the properties of integer exponents to exponents. *For example, we define  $5^{1/3}$  to be the cube root of 5 because we want  $(5^{1/3})^3 = 5(1/3)^3$  to hold, so  $(5^{1/3})^3$  must equal 5*

**N.RN.2** Rewrite expressions involving radicals and rational exponents using the properties of exponents.

**A.REI.1** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

**A.REI.2** Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise

**A.SSE.3** Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★

c. Use the properties of exponents to transform expressions for exponential functions. *For example, the expression  $1.15t$  can be rewritten as  $(1.15^{1/12})^{12t} \approx 1.012^{12t}$  to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*

**F.IF.4** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* ★

**A.APR.6 Rewrite rational expressions. Rewrite simple rational expressions in different forms; write  $a(x)/b(x)$  in the form  $q(x) + r(x)/b(x)$ , where  $a(x)$ ,  $b(x)$ ,  $q(x)$ , and  $r(x)$  are polynomials with the degree of  $r(x)$  less than the degree of  $b(x)$ , using inspection, long division, or, for the more complicated examples, a computer algebra system.**

**F.IF.C.8.b Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as  $y = (1.02)^t$ ,  $y = (0.97)^t$ ,  $y = (1.01)12^t$ ,  $y = (1.2)^t/10$ , and classify them as representing exponential growth or decay.**

**A.REI.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.**

**A.REI.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line  $y = -3x$  and the circle  $x^2 + y^2 = 3$ .**

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“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>FOCUS STANDARD:</b>		
<b>N.RN.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define <math>5^{1/3}</math> to be the cube root of 5 because we want <math>(5^{1/3})^3 = 5(1/3)^3</math> to hold, so <math>(5^{1/3})^3</math> must equal 5.</b>		
Explain	rational exponents integer exponents	1

“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>FOCUS STANDARD:</b>		
<b>N.RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.</b>		
Rewrite	radicals and rational exponents	2

“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>FOCUS STANDARD:</b>		
<b>A.REI.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.</b>		
Explain Construct	Simple equation.	2

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“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>FOCUS STANDARD:</b> <b>A.REI.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise</b>		
Solve	rational and radical equations	2

“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>FOCUS STANDARD:</b> <b>A.SSE.3 Write equivalent expressions for exponential functions using the properties of exponents.</b>		
Write	exponential functions	2

“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>FOCUS STANDARD:</b> <b>A.SSE.B.3.C Use the properties of exponents to transform expressions for exponential functions. For example the expression <math>1.15t</math> can be rewritten as <math>(1.151/12)^{12t} \approx 1.012^{12t}</math> to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</b>		
Use	Exponential function	2

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“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>FOCUS STANDARD:</b> <b>F.IF.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity</b>		
Interpret sketch	Function graphs	3 2

“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>SUPPORTING STANDARD:</b> <b>A.APR.D.6 Rewrite simple rational expressions in different forms; write <math>a(x)/b(x)</math> in the form <math>q(x) + r(x)/b(x)</math>, where <math>a(x)</math>, <math>b(x)</math>, <math>q(x)</math>, and <math>r(x)</math> are polynomials with the degree of <math>r(x)</math> less than the degree of <math>b(x)</math>, using inspection, long division, or, for the more complicated examples, a computer algebra system.</b>		
Rewrite	Rational expressions	2

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“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>SUPPORTING STANDARD:</b> F.IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.		
Write	Function	2

“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<b>SUPPORTING STANDARD</b> F.IF.C.8.B Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$ , $y = (0.97)^t$ , $y = (1.01)^{12t}$ , $y = (1.2)^t/10$ , and classify them as representing exponential growth or decay.		
Use	exponents	2

“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
Additional Standard: A.REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.		
Solve	Systems of linear equations	2

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“Unwrapped” Skills (students need to be able to do)	“Unwrapped” Concepts (students need to know)	DOK Levels
<p style="text-align: center;">Additional Standard:</p> <p>A.REI.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line <math>y = -3x</math> and the circle <math>x^2 + y^2 = 3</math>.</p>		
Solve	Linear equation	2



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Mathematical Standards and Practice: Examples and Explanations

Standards <i>Students are expected to:</i>	Mathematical Practices	Explanations and Examples
<p><b>HS.N-RN.A.1.</b> Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. <i>For example, we define <math>5^{1/3}</math> to be the cube root of 5 because we want <math>(5^{1/3})^3 = 5^{(1/3)3}</math> to hold, so <math>(5^{1/3})^3</math> must equal 5.</i></p>	<p><i>HS.MP.2.</i> Reason abstractly and quantitatively.</p> <p><i>HS.MP.3.</i> Construct viable arguments and critique the reasoning of others.</p>	<p>Students may explain orally or in written format.</p>
<p><b>HS.N-RN.A.2.</b> Rewrite expressions involving radicals and rational exponents using the properties of exponents.</p>	<p><i>HS.MP.7.</i> Look for and make use of structure.</p>	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• <math>\sqrt[3]{27}</math>; <math>\sqrt[3]{27}</math></li> <li>• Rewrite using fractional exponents: <math>27^{1/3}</math></li> <li>• Rewrite <math>\sqrt[3]{27}</math> in at least three alternate forms.</li> </ul> <p>Solution: <math>\sqrt[3]{27} = 27^{1/3} = 3</math></p>

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		<ul style="list-style-type: none"> <li>• Rewrite [REDACTED] using only rational exponents.</li> <li>• Rewrite [REDACTED] in simplest form.</li> </ul>
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Standards	Mathematical Practices	Explanations and Examples
<p><i>Students are expected to:</i></p> <p><b>HS.F-IF.B.4.</b> For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i></p>	<p><i>HS.MP.2.</i> Reason abstractly and quantitatively.</p> <p><i>HS.MP.4.</i> Model with mathematics.</p> <p><i>HS.MP.5.</i> Use appropriate tools strategically.</p> <p><i>HS.MP.6.</i> Attend to precision.</p>	<p>Students may be given graphs to interpret or produce graphs given an expression or table for the function, by hand or using technology.</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• A rocket is launched from 180 feet above the ground at time <math>t = 0</math>. The function that models this situation is given by <math>h = -16t^2 + 96t + 180</math>, where <math>t</math> is measured in seconds and <math>h</math> is height above the ground measured in feet. <ul style="list-style-type: none"> <li>○ What is a reasonable domain restriction for <math>t</math> in this context?</li> <li>○ Determine the height of the rocket two seconds after it was launched.</li> <li>○ Determine the maximum height obtained by the rocket.</li> <li>○ Determine the time when the rocket is 100 feet above the ground.</li> <li>○ Determine the time at which the rocket hits the ground.</li> <li>○ How would you refine your answer to the first question based on your response to the second and fifth questions?</li> </ul> </li> <li>• Compare the graphs of <math>y = 3x^2</math> and <math>y = 3x^3</math>.</li> <li>• Let [REDACTED]. Find the domain of <math>R(x)</math>. Also find the range, zeros, and</li> </ul>

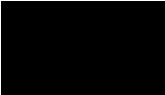
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		<p>asymptotes of <math>R(x)</math>.</p> <ul style="list-style-type: none"><li>• Let [REDACTED]. Graph the function and identify end behavior and any intervals of constancy, increase, and decrease.</li><li>• It started raining lightly at 5am, then the rainfall became heavier at 7am. By 10am the storm was over, with a total rainfall of 3 inches. It didn't rain for the rest of the day. Sketch a possible graph for the number of inches of rain as a function of time, from midnight to midday.</li></ul>
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Standards <i>Students are expected to:</i>	Mathematical Practices	Explanations and Examples
<p><b>HS.A-REI.A.1.</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.</p>	<p><i>HS.MP.2.</i> Reason abstractly and quantitatively.  <i>HS.MP.3.</i> Construct viable arguments and critique the reasoning of others.  <i>HS.MP.7.</i> Look for and make use of structure.</p>	<p>Properties of operations can be used to change expressions on either side of the equation to equivalent expressions. In addition, adding the same term to both sides of an equation or multiplying both sides by a non-zero constant produces an equation with the same solutions. Other operations, such as squaring both sides, may produce equations that have extraneous solutions.</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Explain why the equation <math>x/2 + 7/3 = 5</math> has the same solutions as the equation <math>3x + 14 = 30</math>. Does this mean that <math>x/2 + 7/3</math> is equal to <math>3x + 14</math>?</li> <li>• Show that <math>x = 2</math> and <math>x = -3</math> are solutions to the equation <math>x^2 + x = 6</math>. <math>x^2 + x = 6</math>. Write the equation in a form that shows these are the only solutions, explaining each step in your reasoning.</li> </ul>
<p><b>HS.A-REI.A.2.</b> Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.</p>	<p><i>HS.MP.2.</i> Reason abstractly and quantitatively.  <i>HS.MP.3.</i> Construct viable arguments and critique the reasoning of others.  <i>HS.MP.7.</i> Look for and make use of structure.</p>	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• [Redacted]</li> <li>• [Redacted]</li> <li>• <math>\frac{x+2}{x+3} = 2 \frac{x+2}{x+3} = 2</math></li> <li>• [Redacted]</li> </ul>

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Standards <i>Students are expected to:</i>	Mathematical Practices	Explanations and Examples
<p><b>HS.A-SSE.B.3.</b> Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.</p>	<p><i>HS.MP.1.</i> Make sense of problems and persevere in solving them. <i>HS.MP.2.</i> Reason abstractly and quantitatively.</p>	<p>Students will use the properties of operations to create equivalent expressions.</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>Express <math>2(x^3 - 3x^2 + x - 6) - (x - 3)(x + 4)</math> in factored form and use your answer to say for what values of <math>x</math> the expression is zero.</li> <li>Write the expression below as constant times a power of <math>x</math> and use your answer to decide whether the expression gets larger or smaller as <math>x</math> gets larger.</li> </ul> <p>○ </p>
<p>c. Use the properties of exponents to transform expressions for exponential functions. <i>For example the expression <math>1.15^t</math> can be rewritten as <math>(1.15^{1/12})^{12t} \approx 1.012^{12t}</math> to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</i></p>		

**Essential Questions .....Corresponding Big Ideas**

Essential Questions	Corresponding Big Ideas
<p>How can the properties of the real number system be useful when working with polynomials and rational expressions?</p>	<p>Functions apply to a wide range of situations. They do not have to be described in any specific expression or follow a regular pattern. They apply to cases other than those of “continuous variation”. For example, sequences are functions.</p>
<p>What components are needed to graph a rational function and how are they found?</p>	<p>For functions that map real numbers to real numbers , certain patterns of covariation, or patterns in how two variables changes together , indicate membership in a particular family of functions and determine the type of formula that has the function has.</p>
<p>How can we expression a radical expression ?</p>	<p>A rate of change describes how one variables quantity changes with respect to another -in other words, a rat of change describes the covariation between two variables.</p>
<p>How do you model a quantity that changes regularly over time by the same percentage?</p>	<p>A function’s rate change is one of the main characteristic that determine what kinds of real whole phenomena the function can model.</p> <p>Quadratic functions are characterized by a linear rate of change of the rate change (the second derivative) of a</p>

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quadratic function is constant. Reasoning about the vertex form of a quadratic allows deducing that the quadratic has a maximum or minimum value and that if the zeros of the quadratic are real, they are symmetric about the x -coordinate of the maximum or minimum point.

Exponential Function are characterized by a rate of change that is proportional to the value of the function. It is a property of exponential functions that whenever the input is increases by 1 unit, the output is multiplied by constant factor. Exponential functions connects multiplication to addition through the equation  $a^{b+c}=(a^b)(a^c)$

For functions that map the real numbers to the real numbers, composing a functions with “shifting” or scaling” functions changes the formula and graph of the functions in readily predictable ways.

Under appropriate conditions, functions have inverses

Functions can be represented in various ways, including through algebraic means (e.g., equation), graphs, word descriptions, and tables.

Changing the way that a function is represented ( e.g., algebraically, with a graph , in words, or with a table) does not change the function, although different representations highlight different characteristic , and some may show only part

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	<p>of the function.</p> <p>Some representations of a function may be more useful than others, depending on the context.</p> <p>Links between algebraic and graphical representations of a functions are especially important in the studying relationship and change .</p> <p><b>Sources:</b> Cooney, T &amp; Beckman, Sybilla. (2010). Developing essential understanding of Functions 9-12. Reston, VA: The National Council of Teachers of Mathematics, Inc.</p>
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**Student Learning Objectives .....Instructional Clarification as per PARCC Assessment**

Student Learning Objectives	<a href="#">Instructional Clarification as per PARCC</a>	Mathematical Practices
<p><b>Use properties of integer exponents to explain and convert between expressions involving radicals and rational exponents, using correct notation. For example, we define <math>5^{1/3}</math> to be the cube root of 5 because we want <math>(5^{1/3})^3 = 5^{(1/3)3}</math> to hold, so <math>(5^{1/3})^3</math> must equal 5. N.RN.1 N.RN.2</b></p>	<ul style="list-style-type: none"> <li>• Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about numbers or number systems</li> <li>• Rewrite expressions involving radicals and rational exponents using the properties of exponents.</li> </ul>	<p>MP.3 MP.7</p>
<p><i>Rewrite simple rational expressions in different forms using inspection, long division, or, for the more complicated examples, a computer algebra system. A.APR.6</i></p>	<ul style="list-style-type: none"> <li>• Examples will be simple enough to allow inspection or long division.</li> <li>• Simple rational expressions are limited to numerators and denominators that have degree at most 2.</li> </ul>	<p>MP.1</p>
<p>Solve simple rational and radical equations in one variable and use them to solve problems, justify each step in the process and the solution and in the case of rational and</p>	<ul style="list-style-type: none"> <li>• Simple rational equations are limited to numerators and denominators that have degree at most 2.</li> </ul>	<p>MP.3 MP.6</p>

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radical equations show how extraneous solutions may arise. A.REI.1 A.REI.2		
<b>Solve systems of linear equations and simple systems consisting of a linear and a quadratic equation in two variables, algebraically and graphically. A.REI.6 A.REI.7</b>	<ul style="list-style-type: none"> <li>• Tasks have thin context or no context.</li> <li>• Coefficients are rational numbers.</li> <li>• Tasks do not require any specific method to be used (e.g., prompts do not direct the student to use elimination or any other particular method).</li> </ul>	MP.1 MP.7
<b>Choose and produce equivalent expressions for exponential functions using the properties of exponents. ★A.SSE.3</b>	<ul style="list-style-type: none"> <li>• Tasks have a real-world context.</li> <li>• The equivalent form must reveal something about the real-world context.</li> <li>• Tasks require students to make the connection between the equivalent forms of the expression.</li> </ul>	MP.1 MP.2 MP.4 MP.7
<b>Interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i> ★F.IF.4</b>	<ul style="list-style-type: none"> <li>• See illustrations for F-IF.4 at <a href="http://illustrativemathematics.org">http://illustrativemathematics.org</a>, e.g.</li> <li>• Key features may also include discontinuities.</li> </ul>	MP.4, MP.6
Use properties of exponents to		MP.4, MP.6

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rewrite a function in an equivalent form to reveal and explain different properties of the exponential function. <b>F.IF.8b</b>	<ul style="list-style-type: none"><li>● Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about functions.</li></ul>	
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*Student Learning Objectives in bold are aligned to major standards....*

## Unit Vocabulary Terms

Unit Vocabulary Terms	
Combined variation Complex fraction Constant of variation Direct variation extraneous solution, exponential function exponential growth Horizontal asymptote Joint variation hyperbola integer exponents inverse variation radical expression radical equations radical function radical inequality transforming expressions	long division growth factor exponential decay Rational equation Rational exponents Rational expression Rational function Rational inequality radical notation, degree of a polynomial,

### Differentiations / Modifications Teaching Strategies

Research Based Effective Teaching Strategies	Modifications ( how do I differentiate instruction?)	Special Education	Strategies for English Language Learners
<p>Task /Activities that solidifies mathematical concepts Use questioning techniques to facilitate learning</p> <p>Reinforcing Effort, Providing Recognition Practice , reinforce and connect to other ideas within mathematics</p> <p>Promotes linguistic and nonlinguistic representations</p> <p>Cooperative Learning Setting Objectives, Providing Feedback</p> <p>Varied opportunities for students to communicate mathematically</p> <p>Use technological and /or physical tools</p>	<p><b>Modifications</b> Before or after school tutorial program Leveled rubrics Increased intervention Small groups Change in pace Calculators Extended time Alternative assessments Tiered activities/products Color coded notes Use of movements Use any form of technology</p> <p>*** Write the vocabulary using diagrams that indicate the meaning of the word. Have students explain the word</p> <p>*** construct, complete and use a table to help students organize variation functions . Table must</p>	<p>Change in pace Calculators Alternative assessments Accommodations as per IEP Modifications as per IEP Use graphic organizer to clarify mathematical functions for students with processing and organizing difficulties’.</p> <p>Constant review of math concepts to strengthen understanding of prior concepts for difficulties recalling facts.</p> <p>Use self-regulations strategies’ for student to monitor and assess their thinking and performance for difficulty attending to task</p> <p>Cooperative learning (small group, teaming, peer assisted tutoring) to foster communication and strengthen confidence.</p> <p>Use technology and/or hands on</p>	<p><a href="#">Whiteboards</a> <a href="#">Small Group / Triads</a> <a href="#">Word Walls</a> <a href="#">Partially Completed Solution</a> <a href="#">Gestures</a> <a href="#">Native Language Supports</a> <a href="#">Pictures / Photos</a> <a href="#">Partner Work</a> <a href="#">Work Banks</a> <a href="#">Teacher Modeling</a> <a href="#">Math Journals</a> <a href="#">Manipulatives</a> <a href="#">Peer Coach</a></p> <p><i>Write the vocabulary using diagrams that indicate the meaning of the word. Have students explain the word</i></p> <p><i>While solving for rational expressions , students write or tell the procedures ,</i></p>

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<p><b>21st Century Learning Skills :</b></p> <p>Teamwork and Collaboration</p> <p>Initiative and Leadership</p> <p>Curiosity and Imagination</p> <p>Innovation and Creativity</p> <p>Critical thinking and Problem Solving</p> <p>Flexibility and Adaptability</p> <p>Effective Oral and Written Communication</p> <p>Accessing and Analyzing Information</p>	<p>include variation functions , corresponding equations and graphs</p> <p><b>Extension:</b>  <i>Discuss how to determine</i></p> <p><math>f(x) = 5x + 105x + 10</math> and <math>g(x) = \frac{11}{55}x - 2</math> are inverses , challenge students to find to functions <math>f</math> and <math>g</math> such that <math>f(g(x)) \neq g(f(x))</math> , <math>(g(x)) \neq g(f(x))</math> , with one of the two compositions having the value <math>x</math> . Allow students to work in group to brainstorm solution to puzzle.</p> <p><i>Challenge students to explore whether is it possible to obtain extraneous solutions when solving an equation by cubing both side, as it is when squaring. Then have students extend their finding to raising both sides to any odd or even power. Ask student to share their solutions.</i></p>	<p>devices to: clarify abstract concepts and process for :</p> <ol style="list-style-type: none"> <li>1. Difficulty interpreting pictures and diagram.</li> <li>2. difficulties with oral communications</li> <li>3. Difficulty correctly identifying symbols of numeral</li> <li>4. Difficulty maintaining attentions</li> </ol> <p>Simplify and reduces strategies / Goal structure to enhance motivation , foster independence and self-direction for:</p> <ol style="list-style-type: none"> <li>1. difficulty attending to task</li> <li>2. difficulty with following a sequence of steps to solution.</li> <li>3. difficulty processing and organizing</li> </ol> <p>Scaffolding math idea/concepts by guided practice and questioning strategies' to clarify and enhance understanding of math big ideas for :</p> <ol style="list-style-type: none"> <li>1. Difficulty with process and organization</li> <li>2. difficulty with oral and written communication</li> </ol> <p>Teacher models strategies' and think out aloud strategies to specify step by step process for</p> <ol style="list-style-type: none"> <li>1. Difficulties processing and organization</li> <li>2. difficulty attending to tasks.</li> </ol> <p>Use bold numbers and/or words to draw students' attention to important information.</p>	<p><i>demonstrating with expressions</i></p> <p><i>Explain to students that extraneous solutions are "extra" as their name suggest.</i></p>
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		<p>Provide students with friendly numbers in order to focus on the mathematical concept rather than operations of the problem.</p> <p>***Students draw and cut rectangles. Then use the formula <math>d = \sqrt{l^2 + w^2} \sqrt{l^2 + w^2}</math> to find the length of each diagonal</p> <p>**While the algebraic method of verify that two functions are inverse functions is the most accurate method, it may not be helpful to solidify the concept for some students. Using technological resources, have students graph <math>f(x)</math> and the line <math>y=x</math> on the same coordinate plane. The inverse of <math>f</math> by reflecting its graph over the line <math>y=x</math>, and verify that the image is the graph of <math>f^{-1} f^{-1}(x) = \frac{3^{f(x)-1} 3^{f(x)-1}}{2 \cdot 2}</math></p>	
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**Instructional Resources and Materials**

Instructional Resources and Materials		
Formative Assessment	Print	
Short constructed responses Extended responses Checks for Understanding Exit tickets Teacher observation Projects Timed Practice Test – Multiple Choice & Open-Ended Questions  <b><u>Performance Task:</u></b>  <a href="#">Combined Fuel Efficiency</a>  <b><u>Summative Assessment:</u></b>  <u>Algebra 2 Unit 2 Expression and Equations 2 End of unit Assessment</u>	McDougal Littell Algebra 2 ( 2007)	
	<b>Technology</b> Resources for teachers <a href="#">Annenberg Learning : Insight into Algebra 1</a> <a href="#">Mathematics Assessment Projects</a> <a href="#">Get the Math</a> <a href="#">Achieve the Core</a> <a href="#">Illustrative Mathematics</a> <a href="#">Inside Mathmatics.org</a> <a href="#">Asia Pacific Economic Cooperation : :Lesson Study Videos</a> <a href="#">Genderchip.org</a> <a href="#">Interactive Geometry</a> <a href="#">Mathematical Association of America</a> <a href="#">National Council of Teachers of Mathematics learner.org</a> <a href="#">Math Forum : Teacher Place</a> <a href="#">Shmoop /common core math</a> <a href="#">Geometer's Sketchpad</a>	



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