

Mathematics – High School Mathematics II

<p>Extending the Number System</p> <ul style="list-style-type: none"> Apply and reinforce laws of exponents to convert between radical notation and rational exponent notation; extend the properties of integer exponents to rational exponents and use them to simplify expressions. (e.g., $\sqrt[3]{16} = \sqrt[3]{2^4} = 2^{4/3}$; $((2^{-4})(2^{-4})^{1/4}) = 2^{-1} = \frac{1}{2}$.) 	<p>Quadratic Functions and Modeling</p> <ul style="list-style-type: none"> Find an explicit algebraic expression or series of steps to model the context with mathematical representations. (e.g., The total revenue for a company is found by multiplying the price per unit by the number of units sold minus the production cost. The price per unit is modeled by $p(n) = -0.5n^2 + 6$. The number of units sold is n. Production cost is modeled by $c(n) = 3n + 7$. Write the revenue function.)
<p>Expressions and Equations</p> <ul style="list-style-type: none"> Solve a system consisting of a linear equation and a quadratic equation in two variables. (e.g., Find the intersection of the circle with a radius of 1 centered at the origin and the line $y = -3(x - 2)$. Show your work both graphically and algebraically.) 	<p>Applications of Probability</p> <ul style="list-style-type: none"> Work with probability and using ideas from probability in everyday situations. (e.g., Compare the chance that a person who smokes will develop lung cancer to the chance that a person who develops lung cancer smokes.)
<p>Similarity, Right Triangle Trigonometry, and Proof</p> <ul style="list-style-type: none"> Apply knowledge of trigonometric ratios and the Pythagorean Theorem to determine distances in realistic situations. (e.g., Determine heights of inaccessible objects using various instruments, such as clinometers, hypsometers, transits, etc.) 	<p>Circles With and Without Coordinates</p> <ul style="list-style-type: none"> Use coordinates and equations to describe geometric properties algebraically. (e.g., Write the equation for a circle in the plane with specified center and radius.)