Indiana Academic Standards
Algebra II Crosswalk

2014 Standard Language	2020 Standard Language	Changes
Algebra II		
Complex Numbers and Expressions		
AII.CNE.1: Know there is an imaginary number, i, such that i^2 = -1, and every complex number can be written in the form a + bi, with a and b real. Use the relation i^2 = –1 and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.		Removed standard Moved adaptation of first sentence to 2020 AI.NE.1 Moved last sentence to 2020 PC.QPR.2
	AII.CNE.1: Explain how extending the properties of integer exponents to rational numbers allows for a notation for radicals in terms of rational exponents (e.g. $5^{1/3}$ is defined 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.)	New standard
AII.CNE.2: Translate expressions between radical and exponent form and simplify them using the laws of exponents.	AII.CNE.2: Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Language change Change “translate” to “rewrite” Changed “laws” to “properties”
AII.CNE.3: Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a	AII.CNE.3: Rewrite algebraic rational expressions in equivalent forms (e.g., using properties of exponents and factoring techniques). Add, subtract, multiply, and divide	Language change Merged 2014 AII.CNE.3 and 2014 AII.CNE.4 Changed “laws” to “properties”

nonzero rational expression; add, subtract, multiply, and divide algebraic rational expressions.	algebraic rational expressions	Removed “Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression”
AII.CNE.4: Rewrite algebraic rational expressions in equivalent forms (e.g., using laws of exponents and factoring techniques).		Removed standard
AII.CNE.5: Rewrite 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 long division and synthetic division.	AII.CNE.4: Rewrite 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).	Indicator change Language change Removed “ using long division and synthetic division”
AII.CNE.6: Find partial sums of arithmetic and geometric series and represent them using sigma notation.		Removed standard Moved to 2020 PC.SS.3 No language change
Functions		
AII.F.1: Determine whether a relation represented by a table, graph, or equation is a function.		Removed standard
AII.F.2: Understand composition of functions and combine functions by composition.	AII.F.1: Understand composition of functions and combine functions by composition.	Indicator change No language change

AII.F.4: Understand that if the graph of a function contains a point (a, b), then the graph of the inverse relation of the function contains the point (b, a); the inverse is a reflection over the line y = x.	AII.F.3: Understand that if the graph of a function contains a point (a, b), then the graph of the inverse relation of the function contains the point (b, a); the inverse is a reflection over the line y = x.	Indicator change No language change
AII.F.3: Understand that an inverse function can be obtained by expressing the dependent variable of one function as the independent variable of another, as f and g are inverse functions if and only if f(x)=y and g(y)=x, for all values of x in the domain of f and all values of y in the domain of g. Find the inverse of a function that has an inverse.	AII.F.2: Define and find the inverse of a function. Verify functions are inverses algebraically and graphically.	Indicator change Language change Changed “Understand that an inverse function can be obtained by expressing the dependent variable of one function as the independent variable of another, as f and g are inverse functions if and only if f(x)=y and g(y)=x, for all values of x in the domain of f and all values of y in the domain of g” to “Define and find the inverse of a function” Changed “Find the inverse of a function that has an inverse” to “Verify functions are inverses algebraically and graphically”
AII.F.5: Describe the effect on the graph of f(x) by replacing f(x) with f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative) with and without technology. Find the value of k given the graph of f(x) and the graph of f(x) + k, k f(x), f(kx), or f(x + k).	AII.F.4: Explore and describe the effect on the graph of f(x) by replacing f(x) with f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative) with and without technology. Find the value of k given the graph of f(x) and the graph of f(x) + k, k f(x), f(kx), or f(x + k).	Indicator change Language change Added “Explore”

Systems of Equations and Inequalities		
AII.SE.1: Solve a system of equations consisting of a linear equation and a quadratic equation in two variables algebraically and graphically with and without technology (e.g., find the points of intersection between the line y = –3x and the circle x^2 + y^2 = 3).	AII.SE.1: Solve a system of equations consisting of a linear equation and a quadratic equation in two variables algebraically and graphically with and without technology.	Language change Removed example
AII.SE.2: Solve systems of two or three linear equations in two or three variables algebraically and using technology.	AII.SE.2: Represent and solve real-world systems of linear equations and inequalities in two or three variables algebraically and using technology. Interpret the solution set and determine whether it is reasonable.	Language change Added “Represent” and “real-world” Added “Interpret the solution set and determine whether it is reasonable.”
AII.SE.3: Represent real-world problems using a system of linear equations in three variables and solve such problems with and without technology. Interpret the solution and determine whether it is reasonable.	AII.SE.3: Represent real-world problems using a system of linear equations in three variables. Understand that the algebraic steps to solve a two variable system can be extended to systems of equations in three variables.	Language change Removed “and solve such problems with and without technology. Interpret the solution and determine whether it is reasonable” Added “Understand that the algebraic steps to solve a two variable system can be extended to systems of equations in three variables”
Quadratic Equations and Functions		
AII.Q.1: Represent real-world problems that can be modeled with quadratic functions using	AII.Q.1: Represent real-world problems that can be modeled with quadratic functions using	No change

tables, graphs, and equations; translate fluently among these representations. Solve such problems with and without technology. Interpret the solutions and determine whether they are reasonable.	tables, graphs, and equations; translate fluently among these representations. Solve such problems with and without technology. Interpret the solutions and determine whether they are reasonable.	
	AII.Q.2: Use completing the square to rewrite quadratic functions in vertex form and graph these functions with and without technology.	New standard
AII.Q.2: Use completing the square to rewrite quadratic functions into the form y = a(x + h)^2 + k, and graph these functions with and without technology. Identify intercepts, zeros, domain and range, and lines of symmetry. Understand the relationship between completing the square and the quadratic formula.	AII.Q.3: Understand that different forms of a quadratic equation can provide different information. Use and translate quadratic functions between standard, vertex, and intercept form to graph and identify key features, including intercepts, vertex, line of symmetry, end behavior, and domain and range.	Indicator change Language change Changed “function” to “equation” Added end behavior Removed last sentence and added to 2020 AI.QE.3
AII.Q.3: Use the discriminant to determine the number and type of solutions of a quadratic equation in one variable with real coefficients; find all solutions and write complex solutions in the form of a ± bi for real numbers a and b.	AII.Q.4: Use the discriminant to determine the number and type of solutions of a quadratic equation. Find all solutions and write complex solutions in the form of a ± bi for real numbers a and b.	Indicator change Language change Removed “in one variable with real coefficients”
Exponential and Logarithmic Equations and Functions		
AII.EL.1: Write arithmetic and geometric sequences both recursively and with an explicit formula; use them to model situations and translate		Removed standard Moved to 2020 PC.SS.2 No language change

between the two forms.		
AII.EL.2: Graph exponential functions with and without technology. Identify and describe features, such as intercepts, zeros, domain and range, and asymptotic and end behavior.	AII.EL.1: Graph exponential and logarithmic functions with and without technology. Identify and describe key features, such as intercepts, domain and range, asymptotes and end behavior. Know that the inverse of an exponential function is a logarithmic function.	Indicator change Language change Added logarithmic functions Added “key” Removed zeros Added “Know that the inverse of an exponential function is a logarithmic function”
AII.EL.3: Identify the percent rate of change in exponential functions written as equations, 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.	AII.EL.2: Identify the percent rate of change in exponential functions. Classify them as representing exponential growth or decay.	Indicator change Language change Removed examples
AII.EL.4: Use the properties of exponents to transform expressions for exponential functions (e.g., the expression 1.15^t can be rewritten as (1.15^1/12)^12t ≈ 1.012^12t to reveal the approximate equivalent monthly interest rate if the annual rate is 15%).	AII.EL.3: Use the properties of exponents to rewrite expressions to describe transformations of exponential functions.	Indicator change Language change Changed “transform” to “rewrite” Removed examples
AII.EL.5: Know that the inverse of an exponential function is a logarithmic function. Represent exponential and logarithmic functions using graphing technology and		Removed standard

describe their inverse relationship.		
AII.EL.6: Use the laws of exponents to derive the laws of logarithms. Use the laws of logarithms and the inverse relationship between exponential functions and logarithms to evaluate expressions and solve equations in one variable.	AII.EL.4: Use the properties of exponents to derive the properties of logarithms. Evaluate exponential and logarithmic expressions.	Indicator change Language change Changed “laws” to “properties” Removed “Use the laws of logarithms and the inverse relationship between exponential functions and logarithms to evaluate expressions and solve equations in one variable” Added “Evaluate exponential and logarithmic expressions”
	AII.EL.5: Solve exponential and logarithmic equations in one variable.	New standard
AII.EL.7: Represent real-world problems using exponential equations in one or two variables and solve such problems with and without technology. Interpret the solutions and determine whether they are reasonable.	AII.EL.6: Represent real-world problems using exponential and logarithmic functions and solve such problems with technology. Interpret the solutions and determine whether they are reasonable.	Indicator change Language change Added logarithmic Removed “without technology”
Polynomial, Rational, and Other Equations and Functions		
AII.PR.1: Solve real-world and other mathematical problems involving polynomial equations with and without technology. Interpret the solutions and determine whether the solutions are reasonable.	AII.PR.1: Solve real-world and other mathematical problems involving polynomial equations with and without technology. Interpret the solutions and determine whether the solutions are reasonable.	No change

AII.PR.2: Graph relations and functions including polynomial, square root, and piecewise-defined functions (including step functions and absolute value functions) with and without technology. Identify and describe features, such as intercepts, zeros, domain and range, end behavior, and lines of symmetry.	AII.PR.2: Graph mathematical functions including: a. polynomial functions; b. rational functions; c. square root functions; d. absolute value functions; and, e. piecewise-defined functions with technology. Identify and describe features, such as intercepts, domain and range, end behavior, and lines of symmetry.	Formated in list for ease of reading Language change Changed “relations and functions” to “mathematical functions” Removed “relations” and “step functions” Removed “without technology” Removed zeros
AII.PR.3: Solve real-world and other mathematical problems involving rational and radical functions, including direct, inverse, and joint variation. Give examples showing how extraneous solutions may arise.	AII.PR.3: Solve real-world and other mathematical problems involving radical and rational equations. Give examples showing how extraneous solutions may arise	Language change Changed functions to equations for correct mathematical language Removed “direct, inverse, and joint variation”
	AII.PR.4: Solve absolute value linear equations and inequalities in one variable.	New standard Moved from 2014 AI.L.9 Added “and inequalities”
Data Analysis, Statistics, and Probability		
AII.DSP.1: Make inferences and justify conclusions from sample surveys, experiments, and observational studies. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain		Removed Standard Moved to 2020 AI.DS.1 Language change

how randomization relates to each.		
	AII.DSP.1: Distinguish between random and non-random sampling methods, identify possible sources of bias in sampling, describe how such bias can be controlled and reduced, evaluate the characteristics of a good survey and well-designed experiment, design simple experiments or investigations to collect data to answer questions of interest, and make inferences from sample results.	New standard Moved from 2014 AI.DS.1 No language change
AII.DSP.2: Use technology to find a linear, quadratic, or exponential function that models a relationship for a bivariate data set to make predictions; compute (using technology) and interpret the correlation coefficient.	AII.DSP.3: Use technology to find a linear, quadratic, or exponential function that models a relationship for a bivariate data set to make predictions; Interpret the correlation coefficient for linear models.	Indicator change Language change Remove “compute (using technology)”
AII.DSP.3: Organize, graph (e.g., line plots and box plots), and compare univariate data of two or more different data sets using measures of center (mean and median) and spread (range, inter-quartile range, standard deviation, percentiles, and variance). Understand the effects of outliers on the statistical summary of the data.	AII.DSP.2: Interpret and compare univariate data using measures of center (mean and median) and spread (range, inter-quartile range, standard deviation, and variance). Understand the effects of outliers on the statistical summary of the data.	Indicator change Language change Change “Organize, graph (e.g., line plots and box plots)” to “Interpret” Removed “of two or more different data sets” Removed percentiles
AII.DSP.4: Record multiple	AII.DSP.4: Using the results of	Language change

observations (or simulated samples) of random events and construct empirical models of the probability distributions. Construct a theoretical model and apply the law of large numbers to show the relationship between the two models.	a simulation, decide if a specified model is consistent to those results. Construct a theoretical model and apply the law of large numbers to show the relationship between the two models.	Changed " Record multiple observations (or simulated samples) of random events and construct empirical models of the probability distributions" to "Using the results of a simulation, decide if a specified model is consistent to those results"
AII.DSP.5: Understand dependent and independent events, and conditional probability; apply these concepts to calculate probabilities.	AII.DSP.5: Understand dependent and independent events, and conditional probability; apply these concepts to calculate probabilities.	No change
AII.DSP.6: Understand the multiplication counting principle, permutations, and combinations; apply these concepts to calculate probabilities.	AII.DSP.6: Understand the Fundamental Counting Principle, permutations, and combinations; apply these concepts to calculate probabilities.	Language change Changed "multiplication counting principle" to "Fundamental Counting Principle"