



Algebra I

This document provides correlations between the 2023 Indiana Academic Standards and the 2020 Indiana Academic Standards for easy reference.

The 2023 Indiana Academic Standards resulted from the standards streamlining process required by Indiana Code 20-31-3-1(c-d) and were adopted by the Indiana State Board of Education in June 2023. Standards designated as essential (E) are shaded in gray and all standards were renumbered to avoid gaps in sequencing.

2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Data Analysis and Statistics		Domain: Data Analysis and Statistics	
Number	Text	Number	Text
AI.DS.1	Interpret statistics as a process for making inferences about a population based on a random sample from that population. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each. (E)	AI.DS.1	Understand statistics as a process for making inferences about a population based on a random sample from that population. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
AI.DS.2	Understand that statistics and data are non-neutral and designed to serve a particular interest. Analyze the possibilities for whose interest might be served and how the representations might be misleading. (E)	AI.DS.2	Understand that statistics and data are non-neutral and designed to serve a particular interest. Analyze the possibilities for whose interest might be served and how the representations might be misleading.
AI.DS.3	Use technology to find a linear function that models a relationship between two quantitative variables to make predictions and interpret the slope and y-intercept. Using technology, compute and interpret	AI.DS.3	Use technology to find a linear function that models a relationship between two quantitative variables to make predictions, and interpret the slope and y-intercept. Using technology, compute and interpret

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	the correlation coefficient. (E)		the correlation coefficient.
AI.DS.4	Summarize bivariate categorical data in two-way frequency tables. Interpret relative frequencies in the contexts of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in data.	AI.DS.5	Summarize bivariate categorical data in two-way frequency tables. Interpret relative frequencies in the contexts of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in data.
		AI.DS.4	Describe the differences between correlation and causation.
2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Number Systems, Expressions, and Functions		Domain: Number Systems and Expressions/Functions	
Number	Text	Number	Text
AI.NF.1	Simplify square roots of monomial algebraic expressions, including non-perfect squares.	AI.NE.3	Simplify square roots of monomial algebraic expressions, including non-perfect squares.
AI.NF.2	Add, subtract, and multiply polynomials. Divide polynomials by monomials. Use these operations to rewrite algebraic expressions in equivalent forms, and justify them with algebraic properties. (E)	AI.NE.5	Add, subtract, and multiply polynomials. Divide polynomials by monomials.
AI.NF.3	Extend understanding of independent/dependent variables to encompass domain/range, as applied to relations using tables, graphs, verbal descriptions, and equations. (E)	AI.F.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. Understand that if f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . Understand the graph of f is the graph of the equation $y = f(x)$ with points of the form $(x, f(x))$.

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AI.NF.4	Evaluate functions for given elements of the domain, and interpret statements in function notation in terms of a context.	AI.F.2	Evaluate functions for given elements of its domain, and interpret statements in function notation in terms of a context.
AI.NF.5	Describe, qualitatively, the functional relationship between two quantities by analyzing key features of a graph. Sketch a graph that exhibits given key features of a function that has been verbally described, including intercepts, where the function is increasing or decreasing, where the function is positive or negative, and any relative maximum or minimum values. Identify the independent and dependent variables. (E)	AI.F.4	Describe, qualitatively, the functional relationship between two quantities by analyzing key features of a graph. Sketch a graph that exhibits given key features of a function that has been verbally described, including intercepts, where the function is increasing or decreasing, where the function is positive or negative, and any relative maximum or minimum values, Identify the independent and dependent variables.
		AI.NE.1	Explain the hierarchy and relationships of numbers and sets of numbers within the complex number system. Know that there is an imaginary number, i , such that $\sqrt{-1} = i$. Understand that the imaginary numbers along with the real numbers form the complex number system.
		AI.NE.2	Simplify algebraic rational expressions, with numerators and denominators containing monomial bases with integer exponents, to equivalent forms.
		AI.NE.4	Factor quadratic expressions (including the difference of two squares, perfect square trinomials and other quadratic expressions).
		AI.F.3	Identify the domain and range of relations represented in tables, graphs, verbal descriptions, and equations.

2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Linear Equations, Inequalities, and Functions Systems of Linear Equations and Inequalities		Domain: Linear Equations, Inequalities, and Functions	
Number	Text	Number	Text
AI.L.1	Represent real-world problems using linear equations and inequalities in one variable, including those with rational number coefficients and variables on both sides of the equal sign. Solve them fluently, explaining the process used and justify the choice of a solution method. (E)	AI.L.1	Represent real-world problems using linear equations and inequalities in one variable, including those with rational number coefficients and variables on both sides of the equal sign. Solve them fluently, explaining the process used and justifying the choice of a solution method.
AI.L.2	Represent linear functions as graphs from equations (with emphasis on technology), equations from graphs, and equations from tables and other given information (e.g., from a given point on a line and the slope of the line). Find the equations of a line in a slope-intercept, point-slope, and standard forms. Recognize that different forms reveal more or less information about a given situation based on the form used.	AI.L.3	Represent linear functions as graphs from equations (with and without technology), equations from graphs, and equations from tables and other given information (e.g., from a given point on a line and the slope of the line). Find the equation of a line, passing through a given point, that is parallel or perpendicular to a given line.
AI.L.3	Represent real-world problems that can be modeled with a linear function using equations, graphs, and tables, including with technology. Translate fluently among these representations and interpret the slope and intercepts. (E)	AI.L.4	Represent real-world problems that can be modeled with a linear function using equations, graphs, and tables; translate fluently among these representations, and interpret the slope and intercepts.
AI.L.4	Solve linear and quadratic equations and formulas for a specified variable to highlight a quantity of interest, using the same reasoning as in solving	AI.L.7	Solve linear and quadratic equations and formulas for a specified variable to highlight a quantity of interest, using the same reasoning as in solving

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	equations. (E)		equations.
AI.SEI.1	Represent real-world problems using linear inequalities in two variables and solve such problems; interpret the solution set, and determine whether it is reasonable. Graph the solutions to a linear inequality in two variables as a half-plane. (E)	AI.L.6	Represent real-world problems using linear inequalities in two variables and solve such problems; interpret the solution set and determine whether it is reasonable. Graph the solutions to a linear inequality in two variables as a half-plane.
		AI.L.2	Solve compound linear inequalities in one variable, and represent and interpret the solution on a number line. Write a compound linear inequality given its number line representation.
		AI.L.5	Translate among equivalent forms of equations for linear functions, including slope-intercept, point-slope, and standard. Recognize that different forms reveal more or less information about a given situation.

2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Systems of Linear Equations and Inequalities		Domain: Systems of Linear Equations and Inequalities	
Number	Text	Number	Text

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AI.SEI.1	Represent real-world problems using linear inequalities in two variables and solve such problems; interpret the solution set, and determine whether it is reasonable. Graph the solutions to a linear inequality in two variables as a half-plane. (E)	AI.L.6	Represent real-world problems using linear inequalities in two variables and solve such problems; interpret the solution set and determine whether it is reasonable. Graph the solutions to a linear inequality in two variables as a half-plane.
AI.SEI.2	Write and graph a system of two linear equations in two variables that represents a real-world problem and solve the problem graphically and algebraically with and without technology. Interpret the solution, and determine whether the solution is reasonable. (E)	AI.SEI.3	Write a system of two linear equations in two variables that represents a real-world problem and solve the problem with and without technology. Interpret the solution and determine whether the solution is reasonable.
AI.SEI.3	Represent real-world problems using a system of two linear inequalities in two variables. Graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes with and without technology. Interpret the solution set, and determine whether it is reasonable.	AI.SEI.4	Represent real-world problems using a system of two linear inequalities in two variables. Graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes with and without technology. Interpret the solution set and determine whether it is reasonable.
		AI.SEI.1	Understand the relationship between a solution of a system of two linear equations in two variables and the graphs of the corresponding lines. Solve pairs of linear equations in two variables by graphing; approximate solutions when the coordinates of the solution are non-integer numbers.
		AI.SEI.2	Verify that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions, including cases with

				no solution and infinitely many solutions. Solve systems of two linear equations algebraically using elimination and substitution methods.
2023 Indiana Academic Standard		2020 Indiana Academic Standard		
Domain: Quadratic and Exponential Equations and Functions		Domain: Quadratic and Exponential Equations and Functions		
Number	Text	Number	Text	
AI.QE.1	Distinguish between situations that can be modeled with linear functions and exponential functions. Understand that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. Compare linear functions and exponential functions that model real-world situations using tables, graphs, and equations. (E)	AI.QE.1	Distinguish between situations that can be modeled with linear functions and with exponential functions. Understand that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. Compare linear functions and exponential functions that model real-world situations using tables, graphs, and equations.	
AI.QE.2	Represent real-world and other mathematical problems that can be modeled with simple exponential functions using tables, graphs, and equations of the form $y = ab^x$ (for integer values of $x > 1$, rational values of $b > 0$ and $b \neq 1$) with and without technology; interpret the values of a and b .	AI.QE.2	Represent real-world and other mathematical problems that can be modeled with simple exponential functions using tables, graphs, and equations of the form $y = ab^x$ (for integer values of $x > 1$, rational values of $b > 0$ and $b \neq 1$) with and without technology; interpret the values of a and b .	
AI.QE.3	Solve quadratic equations in one variable by inspection (e.g., for $x^2 = 49$), finding square roots, using the quadratic formula, and factoring, as appropriate to the initial form of the equation.	AI.QE.4	Solve quadratic equations in one variable by inspection (e.g., for $x^2 = 49$), finding square roots, using the quadratic formula, and factoring, as appropriate to the initial form of the equation.	

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AI.QE.4	Represent real-world problems using quadratic equations in one or two variables and solve such problems with technology. Interpret the solution(s), and determine whether they are reasonable. (E)	AI.QE.5	Represent real-world problems using quadratic equations in one or two variables and solve such problems with technology. Interpret the solution(s) and determine whether they are reasonable.
AI.QE.5	Graph exponential and quadratic functions with and without technology. Identify and describe key features, such as zeros, lines of symmetry, and extreme values in real-world and other mathematical problems involving quadratic functions with and without technology; interpret the results in the real-world contexts.	AI.QE.6	Graph exponential and quadratic functions with and without technology. Identify and describe key features, such as zeros, lines of symmetry, and extreme values in real-world and other mathematical problems involving quadratic functions with and without technology; interpret the results in the real-world contexts.
AI.QE.6	Describe the relationships among a solution of a quadratic equation, a zero of the function, an x-intercept of the graph, and the factors of the expression. Explain that every quadratic has two complex solutions, which may or may not be real solutions.	AI.QE.7	Describe the relationships among a solution of a quadratic equation, a zero of the function, an x-intercept of the graph, and the factors of the expression. Explain that every quadratic has two complex solutions, which may or may not be real solutions.
		AI.QE.3	Use area models to develop the concept of completing the square to solve quadratic equations. Explore the relationship between completing the square and the quadratic formula.