Content Connectors aligned to the
Indiana Academic Standards
Mathematics Grade 10

Content Connectors (CCs) identify the most salient grade-level, core academic content in math found in the Indiana Academic Standards. CCs focus on the core content, knowledge and skills needed at each grade to promote success at the next, and identify priorities in each content area to guide the instruction for students in this population and for the alternate assessment.

Indiana Academic Standards	Content Connectors
Number Sense, Expressions, and Computation	
AI.RNE.1: Understand the hierarchy and relationships of numbers and sets of numbers within the real number system.	MA.AI.RNE.1.a.1: Students needs to know what an irrational number / rational number are.
AI.RNE.2: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	MA.AI.RNE.2.a.1: Identify the pattern for the sum or product for combinations of rational numbers.
AI.RNE.3: Rewrite and evaluate numeric expressions with positive rational exponents using the properties of exponents.	MA.AI.RNE.3.a.1: Use properties of integer exponents to produce equivalent expressions.
AI.RNE.4: Simplify square roots of non-perfect square integers and algebraic monomials.	MA.AI.RNE.4.a.1: Solve equations using square root properties.
AI.RNE.5: Simplify algebraic rational expressions, with numerators and denominators containing monomial bases with integer exponents, to equivalent forms.	MA.AI.RNE.5.a.1: Simplify numeric exponential expressions in rational form.
AI.RNE.6: Factor common terms from polynomials and factor polynomials completely. Factor the difference of two squares, perfect square trinomials, and other quadratic expressions.	MA.AI.RNE.6.a.1: Simplify expressions that include exponents. Rewrite expression that includes rational exponents.
Data Analysis, Statistics, and Probability	
MA.AI.DS.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.	MA.AL.DS.1.a.1: Identify whether an event is fair or not.
MA.AI.DS.2: Graph bivariate data on a scatter plot and describe the relationship between the variables.	MA.AI.DS.2.a.1: Graph bivariate data using scatter plots and identify possible associations between the variables.
	MA.AI.DS.2.a.2: Using scatter plots, identify data points that appear to be outliers.
MA.AI.DS.3: Use technology to find a linear function that models a relationship for a bivariate data set to make predictions; interpret the slope and y-intercept, and compute (using technology) and interpret the correlation coefficient.	MA.AI.DS.3.a.1: Use the line of best fit to find a point that answers a question about the data.
MA.AI.DS.4: Distinguish between correlation and causation.	MA.AI.DS.4.a.1: Identify a correlation when analyzing bivariate data on a scatter plot.
MA.AI.DS.5: Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a	MA.AI.DS.5.a.1: Examine the study using categorical data.

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two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns (including joint, marginal, and conditional relative frequencies) to describe possible associations and trends in the data.	
MA.AI.DS.6: 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.	MA.AI.DS.6.a.1: Identify whether an event is fair or not.
Linear Equations, Inequalities, and Functions	
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).	MS.AI.F.1.a.1: Distinguish between functions and non-functions, graphs, or tables.
AI.F.3: Identify the domain and range of relations represented in tables, graphs, verbal descriptions, and equations.	MA.AI.F.3.a.1: Identify the domain and range from table for graph.
AI.F.4: Understand and interpret statements that use function notation in terms of a context; relate the domain of the function to its graph and to the quantitative relationship it describes.	MA.AI.F.4.a.1: Use pattern to continue a function expression.
MA.AI.L.1: Understand that the steps taken when solving linear equations create new equations that have the same solution as the original. Solve fluently linear equations and inequalities in one variable with integers, fractions, and decimals as coefficients. Explain and justify each step in solving an equation, starting from the assumption that the original equation has a solution. Justify the choice of a solution method.	MA.AI.L.1.a.1: Solve equations with one or two variables using equations or graphs. MA.AI.L.1.a.2: Solve a linear equation to find a missing attribute given the area, surface area, or volume and the other attribute.
MA.AI.L.2: Represent real-world problems using linear equations and inequalities in one variable and solve such problems. Interpret the solution and determine whether it is reasonable.	MA.AI.L.2.a.1: Translate a real-world problem into a one variable linear equation.
MA.AI.L.3: Represent real-world and other mathematical problems using an algebraic proportion that leads to a linear equation and solve such problems.	MA.AI.L.3.a.1: Represent real-world situation using proportion.
MA.AI.L.4: 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).	MA.AI.L.4.a.1: Identify the rate of change (slope) and y-intercept from graphs.
MA.AI.L.5: Represent real-world problems using linear inequalities in two variables and solve such problems; interpret the solution set and determine	MA.AI.L.5.a.1: Interpret the rate of change using graphical representations.

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whether it is reasonable. Solve other linear inequalities in two variables by graphing.	
MA.AI.L.6: 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.	MA.AI.L.6.a.1: Identify the rate of change (slope) and initial value (y-intercept) from graphs.
MA.AI.L.7: Represent real-world problems using linear inequalities in two variables and solve such problems; interpret the solution set and determine whether it is reasonable. Solve other linear inequalities in two variables by graphing.	MA.AI.L.7.a.1: Identify solution from a given linear inequality graph of a real-world situation.
MA.AI.L.8: 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.	MA.AI.L.8.a.1: Find a solution of compound inequalities given a number line of graph.
MA.AI.L.9: Solve absolute value linear equations in one variable.	MA.AI.L.9.a.1: Evaluate absolute value of an expression.
MA.AI.L.10: Graph absolute value linear equations in two variables.	MA.AI.L.10.a.1: Evaluate absolute value of expression.
MA.AI.L.11: Solve equations and formulas for a specified variable, including equations with coefficients represented by variables.	MA.AI.L.11.a.1: Solve linear equations with 1 variable.
Systems of Equations and Inequalities	
AI.SEI.1: Understand the relationship between a solution of a pair of 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.1.a.1: Identify the solution to a system of linear equations given a graph.
AI.SEI.2: Understand 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. Solve pairs of linear equations in two variables using substitution and elimination.	AI.SEI.2.a.1: Use substitution to solve a system of linear equations.
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.a.1: Identify the solution to a system of linear equations given a graph of a real world situation.
AI.SEI.4: Represent real-world problems using a system of two linear inequalities in two variables and solve such problems; interpret the solution set and determine whether it is reasonable. Solve other pairs of linear inequalities by graphing with and without technology.	AI.SEI.4.a.1: Identify the solution set to a system of inequalities.
Quadratic & Exponential Equations and Functions	
AI.QE.1: Distinguish between situations that can be modeled with linear	AI.QE.1.a.1: Given multiple graphs, describe the function as linear or not

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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.	linear.
AI.QE.2: Represent real-world and other mathematical problems that can be modeled with 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 ≠ 1); translate fluently among these representations and interpret the values of a and b.	AI.QE.2.a.1: With a model, students will answer questions about exponential functions.
AI.QE.3: Graph exponential and quadratic equations in two variables with and without technology.	AI.QE.3.a.1: Determine if the points lie on a graph of an exponential or quadratic function.
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.	AI.QE.4.a.1: Solve equations using square root properties.
AI.QE.5: Represent real-world problems using quadratic equations in one or two variables and solve such problems with and without technology. Interpret the solution and determine whether it is reasonable.	AI.QE.5.a.1: Determine if the points lie on a graph of a quadratic function of a real-world situation.
AI.QE.6: Use the process of factoring to determine zeros, lines of symmetry, and extreme values in real-world and other mathematical problems involving quadratic functions; interpret the results in the real-world contexts.	AI.QE.6.a.1: Identify zeros of a quadratic function.
AI.QE.7: Describe the relationships among the solutions of a quadratic equation, the zeros of the function, the x-intercepts of the graph, and the factors of the expression.	AI.QE.7.a.1: Identify zeros of a quadratic function.