

Calculus

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
M1.1	Solving problems		
M1.1.A	Select and justify functions and equations to model and solve problems.		Covered in Algebra course
M1.1.B	Solve problems that can be represented by linear functions, equations, and inequalities.		Covered in Algebra course
M1.1.C	Solve problems that can be represented by a system of two linear equations or inequalities.		Covered in Algebra course
M1.1.D	Solve problems that can be represented by exponential functions and equations.		Covered in Algebra course
M1.2	Characteristics and behaviors of functions		
M1.2.A	Determine whether a relationship is a function and identify the domain, range, roots, and independent and dependent variables.		Covered in Algebra course
M1.2.B	Represent a function with a symbolic expression, as a graph, in a table, and using words, and make connections among these representations.		Covered in Algebra course
M1.2.C	Evaluate $f(x)$ at a (i.e., $f(a)$) and solve for x in the equation $f(x) = b$.		Covered in Algebra course
M1.2.D	Plot points, sketch, and describe the graphs of functions of the form $f(x) = a/x + b$.		Covered in Algebra course
M1.3	Linear functions, equations, and relationships		

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M1.3.A	Write and solve linear equations and inequalities in one variable.		Covered in Algebra course
M1.3.B	Describe how changes in the parameters of linear functions and functions containing an absolute value of a linear expression affect their graphs and the relationships they represent.		Covered in Algebra course
M1.3.C	Identify and interpret the slope and intercepts of a linear function, including equations for parallel and perpendicular lines.		Covered in Algebra course
M1.3.D	Write and graph an equation for a line given the slope and the y-intercept, the slope and a point on the line, or two points on the line, and translate between forms of linear equations.		Covered in Algebra course
M1.3.E	Write and solve systems of two linear equations and inequalities in two variables.		Covered in Algebra course
M1.3.F	Find the equation of a linear function that best fits bivariate data that are linearly related, interpret the slope and y-intercept of the line, and use the equation to make predictions.		Covered in Algebra course
M1.3.G	Describe the correlation of data in scatterplots in terms of strong or weak and positive or negative.		Covered in Algebra course

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M1.3.H	Determine the equation of a line in the coordinate plane that is described geometrically, including a line through two given points, a line through a given point parallel to a given line, and a line through a given point perpendicular to a given line.		Covered in Algebra course
M1.4	Proportionality, similarity, and geometric reasoning		
M1.4.A	Distinguish between inductive and deductive reasoning.		Covered in Geometry course
M1.4.B	Use inductive reasoning to make conjectures, to test the plausibility of a geometric statement, and to help find a counterexample.		Covered in Geometry course
M1.4.C	Use deductive reasoning to prove that a valid geometric statement is true.		Covered in Geometry course
M1.4.D	Determine and prove triangle similarity.		Covered in Geometry course
M1.4.E	Know, prove, and apply theorems about parallel and perpendicular lines.		Covered in Geometry course
M1.4.F	Know, prove, and apply theorems about angles, including angles that arise from parallel lines intersected by a transversal.		Covered in Geometry course

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M1.4.G	Explain and perform basic compass and straightedge constructions related to parallel and perpendicular lines.		Covered in Geometry course
M1.5	Data and distributions		
M1.5.A	Use and evaluate the accuracy of summary statistics to describe and compare data sets.		Covered in Algebra course
M1.5.B	Describe how linear transformations affect the center and spread of univariate data.		Covered in Algebra course
M1.5.C	Make valid inferences and draw conclusions based on data.	Graph Behavior	Graph Analysis
M1.6	Numbers, expressions, and operations		
M1.6.A	Know the relationship between real numbers and the number line, and compare and order real numbers with and without the number line.		Covered in Algebra course
M1.6.B	Determine whether approximations or exact values of real numbers are appropriate, depending on the context, and justify the selection.		Covered in Algebra course

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M1.6.C	Recognize the multiple uses of variables, determine all possible values of variables that satisfy prescribed conditions, and evaluate algebraic expressions that involve variables.		Covered in Algebra course
M1.6.D	Solve an equation involving several variables by expressing one variable in terms of the others.		Covered in Algebra course
M1.7	Additional Key Content		
M1.7.A	Sketch the graph for an exponential function of the form $y = ab$ to the n power where n is an integer, describe the effects that changes in the parameters a and b have on the graph, and answer questions that arise in situations modeled by exponential functions.		Covered in Algebra course
M1.7.B	Find and approximate solutions to exponential equations.		Covered in Algebra course
M1.7.C	Interpret and use integer exponents and square and cube roots, and apply the laws and properties of exponents to simplify and evaluate exponential expressions.		Covered in Algebra course
M1.7.D	Express arithmetic and geometric sequences in both explicit and recursive forms, translate between the two forms, explain how rate of change is represented in each form, and use the forms to find specific terms in the sequence.	Derivative Applications	Rates of Change
M1.8	Reasoning, problem solving, and communication		

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M1.8.A	Analyze a problem situation and represent it mathematically.)	Limits and Continuity	Algebraic Computation of a Limit
M1.8.B	Select and apply strategies to solve problems.	Limits and Continuity	Algebraic Computation of a Limit
M1.8.C	Evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem.	Limits and Continuity	Concept of a Limit
M1.8.D	Generalize a solution strategy for a single problem to a class of related problems, and apply a strategy for a class of related problems to solve specific problems.	Limits and Continuity	Concept of a Limit
M1.8.E	Read and interpret diagrams, graphs, and text containing the symbols, language, and conventions of mathematics.	Graph Behavior	Asymptotes and End-Behavior
M1.8.F	Summarize mathematical ideas with precision and efficiency for a given audience and purpose.	DERIVATIVE APPLICATIONS	Rates of Change
M1.8.G	Synthesize information to draw conclusions, and evaluate the arguments and conclusions of others.	Differential Equations and their Applications	Modeling Using Differential Equations
M1.8.H	Use inductive reasoning to make conjectures, and use deductive reasoning to prove or disprove conjectures.	Differential Equations and their Applications	Modeling Using Differential Equations