

CCGPS ADVANCED ALGEBRA CONTENT MAP

Unit 1: Inferences and Conclusions from Data			
Lesson	Sub-lesson number	Title	Standard(s)
Lesson 1	Summarizing and Interpreting Data		
	1.1.1	Describing Data Sets	MCC9–12.S.ID.2★
	1.1.2	Comparing Data Sets	MCC9–12.S.ID.2★
Lesson 2	Using the Normal Curve		
	1.2.1	Normal Distributions and the 68–95–99.7 Rule	MCC9–12.S.ID.4★
	1.2.2	Standard Normal Calculations	MCC9–12.S.ID.4★
	1.2.3	Assessing Normality	MCC9–12.S.ID.4★
Lesson 3	Populations Versus Random Samples and Random Sampling		
	1.3.1	Differences Between Populations and Samples	MCC9–12.S.IC.1★
	1.3.2	Simple Random Sampling	MCC9–12.S.IC.2★
	1.3.3	Other Methods of Random Sampling	MCC9–12.S.IC.2★
Lesson 4	Surveys, Experiments, and Observational Studies		
	1.4.1	Identifying Surveys, Experiments, and Observational Studies	MCC9–12.S.IC.3★
	1.4.2	Designing Surveys, Experiments, and Observational Studies	MCC9–12.S.IC.3★
Lesson 5	Estimating Sample Proportions and Sample Means		
	1.5.1	Estimating Sample Proportions	MCC9–12.S.IC.4★
	1.5.2	The Binomial Distribution	MCC9–12.S.IC.4★
	1.5.3	Estimating Sample Means	MCC9–12.S.IC.4★
	1.5.4	Estimating with Confidence	MCC9–12.S.IC.4★
Lesson 6	Comparing Treatments and Reading Reports		
	1.6.1	Evaluating Treatments	MCC9–12.S.IC.5★
	1.6.2	Designing and Simulating Treatments	MCC9–12.S.IC.5★
	1.6.3	Reading Reports	MCC9–12.S.IC.6★

Unit 2: Polynomial Functions			
Lesson	Sub-lesson number	Title	Standard(s)
Lesson 1	Polynomial Structures and Operating with Polynomials		
	2.1.1	Structures of Expressions	MCC9–12.A.SSE.1a★
	2.1.2	Adding and Subtracting Polynomials	MCC9–12.A.APR.1
	2.1.3	Multiplying Polynomials	MCC9–12.A.APR.1
Lesson 2	Proving Identities		
	2.2.1	Polynomial Identities	MCC9–12.A.SSE.1b★ MCC9–12.A.SSE.2 MCC9–12.A.APR.4
	2.2.2	Complex Polynomial Identities	MCC9–12.N.CN.8 (+) MCC9–12.A.SSE.1b★ MCC9–12.A.SSE.2 MCC9–12.A.APR.4
	2.2.3	The Binomial Theorem	MCC9–12.A.SSE.1a★ MCC9–12.A.SSE.1b★ MCC9–12.A.SSE.2 MCC9–12.A.APR.4 MCC9–12.A.APR.5 (+)
Lesson 3	Graphing Polynomial Functions		
	2.3.1	Describing End Behavior and Turns	MCC9–12.F.IF.7c★
	2.3.2	The Remainder Theorem	MCC9–12.A.APR.2
	2.3.3	Finding Zeros	MCC9–12.A.APR.3 MCC9–12.N.CN.9 (+) MCC9–12.F.IF.7c★
	2.3.4	The Rational Root Theorem	MCC9–12.A.APR.3
Lesson 4	Solving Systems of Equations with Polynomials		
	2.4.1	Solving a Linear-Polynomial System of Equations	MCC9–12.A.REI.7 MCC9–12.A.REI.11★
Lesson 5	Geometric Series		
	2.5.1	Geometric Sequences	MCC9–12.A.SSE.4★
	2.5.2	Sum of a Finite Geometric Series	MCC9–12.A.SSE.4★
	2.5.3	Sum of an Infinite Geometric Series	MCC9–12.A.SSE.4★

Unit 3: Rational and Radical Relationships			
Lesson	Sub-lesson number	Title	Standard(s)
Lesson 1	Operating with Rational Expressions		
	3.1.1	Adding and Subtracting Rational Expressions	MCC9–12.A.APR.7 (+)
	3.1.2	Multiplying Rational Expressions	MCC9–12.A.APR.7 (+)
	3.1.3	Dividing Rational Expressions	MCC9–12.A.APR.6 MCC9–12.A.APR.7 (+)
Lesson 2	Solving Rational and Radical Equations		
	3.2.1	Creating and Solving Rational Equations	MCC9–12.A.CED.1★ MCC9–12.A.REI.2
	3.2.2	Creating and Solving Rational Inequalities	MCC9–12.A.CED.1★ MCC9–12.A.REI.2
	3.2.3	Solving Radical Equations	MCC9–12.A.REI.2
Lesson 3	Graphing Rational Functions		
	3.3.1	Creating Rational Equations in Two Variables	MCC9–12.A.CED.2★
	3.3.2	Graphing Rational Functions	MCC9–12.A.CED.2★
			MCC9–12.F.IF.4★ MCC9–12.F.IF.5★
	3.3.3	Finding the Zeros	MCC9–12.F.IF.4★ MCC9–12.F.IF.7d★ (+)
3.3.4	Solving a System of Rational Equations	MCC9–12.A.REI.11★	
Lesson 4	Graphing Radical Functions		
	3.4.1	Creating Radical Equations in Two Variables	MCC9–12.A.CED.2★
	3.4.2	Graphing Radical Functions	MCC9–12.F.IF.4★ MCC9–12.F.IF.5★ MCC9–12.F.IF.7b★
Lesson 5	Comparing Properties of Functions		
	3.5.1	Comparing Properties of Functions	MCC9–12.F.IF.9

Unit 4: Exponential and Logarithmic Functions			
Lesson	Sub-lesson number	Title	Standard(s)
Lesson 1	Exponential Functions		
	4.1.1	Rewriting Exponential Functions	MCC9–12.A.SSE.3c★ MCC9–12.F.IF.8b
	4.1.2	Properties of Exponential Functions	MCC9–12.F.IF.7e★
Lesson 2	Introducing Logarithmic Functions		
	4.2.1	Defining Logarithms	MCC9–12.F.IF.8b MCC9–12.F.BF.5 (+)
	4.2.2	Graphs of Logarithmic Functions	MCC9–12.F.IF.7e★
	4.2.3	Properties of Logarithms	MCC9–12.F.IF.8b MCC9–12.F.BF.5 (+)
Lesson 3	Solving Exponential Equations Using Logarithms		
	4.3.1	Common Logarithms	MCC9–12.A.SSE.3c★ MCC9–12.F.IF.8b MCC9–12.F.BF.5 (+) MCC9–12.F.LE.4★
	4.3.2	Natural Logarithms	MCC9–12.F.IF.8b MCC9–12.F.BF.5 (+) MCC9–12.F.LE.4★
Unit 5: Trigonometric Functions			
Lesson	Sub-lesson number	Title	Standard(s)
Lesson 1	Radians and the Unit Circle		
	5.1.1	Radians	MCC9–12.F.TF.1 MCC9–12.F.TF.2
	5.1.2	The Unit Circle	MCC9–12.F.TF.2
	5.1.3	Special Angles in the Unit Circle	MCC9–12.F.TF.2
	5.1.4	Evaluating Trigonometric Functions	MCC9–12.F.TF.2
Lesson 2	Graphing Trigonometric Functions		
	5.2.1	Graphing the Sine Function	MCC9–12.F.IF.7e★
	5.2.2	Graphing the Cosine Function	MCC9–12.F.IF.7e★
	5.2.3	Using Sine and Cosine to Model Periodic Phenomena	MCC9–12.F.TF.5★
Lesson 3	A Pythagorean Identity		
	5.3.1	A Pythagorean Identity	MCC9–12.F.TF.8

Unit 6: Mathematical Modeling

Lesson	Sub-lesson number	Title	Standard(s)
Lesson 1	Creating Equations		
	6.1.1	Creating Equations in One Variable	MCC9–12.A.CED.1★
	6.1.2	Creating Equations in Two Variables	MCC9–12.A.CED.2★ MCC9–12.F.IF.4★ MCC9–12.F.IF.5★ MCC9–12.F.IF.7a★ MCC9–12.F.IF.7c★ MCC9–12.F.IF.7e★ MCC9–12.F.IF.8a MCC9–12.F.IF.8b MCC9–12.F.BF.1a★
	6.1.3	Creating Exponential and Logarithmic Equations	MCC9–12.A.CED.2★ MCC9–12.F.IF.4★ MCC9–12.F.IF.5★ MCC9–12.F.IF.7e★ MCC9–12.F.IF.8b MCC9–12.F.BF.1a★
	6.1.4	Creating Rational, Radical, and Trigonometric Functions	MCC9–12.A.CED.2★ MCC9–12.F.IF.4★ MCC9–12.F.IF.5★ MCC9–12.F.IF.7b★ MCC9–12.F.IF.7d★ (+) MCC9–12.F.IF.7e★ MCC9–12.F.BF.1a★

Lesson 2	Piecewise, Step, and Absolute Value Functions		
6.2.1	Piecewise Functions	MCC9–12.A.CED.2★ MCC9–12.F.IF.4★ MCC9–12.F.IF.5★ MCC9–12.F.IF.7b★	
6.2.2	Step Functions	MCC9–12.A.CED.2★ MCC9–12.F.IF.4★ MCC9–12.F.IF.5★ MCC9–12.F.IF.7b★	
6.2.3	Absolute Value Functions	MCC9–12.A.CED.2★ MCC9–12.F.IF.4★ MCC9–12.F.IF.5★ MCC9–12.F.IF.7b★	
Lesson 3	Working with Constraint Equations and Inequalities		
6.3.1	Creating Constraint Equations	MCC9–12.A.CED.2★ MCC9–12.A.CED.3★	
6.3.2	Creating Constraint Inequalities	MCC9–12.A.CED.2★ MCC9–12.A.CED.3★	
6.3.3	Rearranging Formulas	MCC9–12.A.CED.4★	
Lesson 4	Transformations of Graphs		
6.4.1	Transformations of Parent Graphs	MCC9–12.F.BF.3	
6.4.2	Recognizing Odd and Even Functions	MCC9–12.F.BF.3	
Lesson 5	Comparing Properties Within and Between Functions		
6.5.1	Reading and Identifying Key Features of Real-World Situation Graphs	MCC9–12.F.IF.4★ MCC9–12.F.IF.5★ MCC9–12.F.IF.6★	
6.5.2	Calculating Average Rates of Change	MCC9–12.F.IF.6★	
6.5.3	Comparing Functions	MCC9–12.F.IF.6★ MCC9–12.F.IF.9	

Lesson 6	Operating on Functions		
	6.6.1	Adding, Subtracting, Multiplying, and Dividing Functions	MCC9–12.F.BF.1b★
	6.6.2	Composing Functions	MCC9–12.F.BF.1c★ (+)
Lesson 7	Inverses of Functions		
	6.7.1	Finding and Graphing Inverses of Functions	MCC9–12.F.BF.4a
	6.7.2	Verifying Inverses of Functions and Reading Values	MCC9–12.F.BF.4b (+) MCC9–12.F.BF.4c (+)
Lesson 8	Geometric Modeling		
	6.8.1	Two-Dimensional Cross Sections of Three-Dimensional Objects	MCC9–12.G.GMD.4 MCC9–12.G.MG.1★
	6.8.2	Density	MCC9–12.G.MG.2★
	6.8.3	Design	MCC9–12.G.MG.3★