OKMath

Oklahoma Academic Standards - Mathematics: Cluster Analysis

Middle School Mathematics Organized by Domain Including Clusters from 6th, 7th, and 8th Grades:

Domain	Cluster	6th	7th	8th
Ratios and Proportions (RP)	(6.RP.A) Understand ratio concepts and use ratio rasoning to solve problems.	•		
	(7.RP.A) Analyze proportional relationships and use them to solve real-world problems.		•	
The Number System (NS)	(6.NS.A) Apply and extend previous understanding of multiplication and division to divide fractions by fractions.	•		
	(6.NS.B) Compute fluently with multi-digit numbers and find common factors and multiples.	•		
	(6.NS.C) Apply and extend previous understandings of numbers to the systems of rational numbers.	•		
	(7.NS.A) Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.		•	
	(8.NS.A) Know that there are number that are not rational, and approximate them by rational numbers.			•
Expressions and Equations (EE)	(6.EE.A) Apply and extend previous understadings of arithmetic to algebraic expressions.	•		
	(6.EE.B) Reason about and solve one-variable equations and inequalities.	•		
	(6.EE.C) Represent and analyze quantitative relationships between dependent and inependent variables.	•		
	(7.EE.A) Use properties of operations to generate equivalent expressions.		•	
	(7.EE.B) Solve real-life and mathematical problems using numerical and algebraic expressions and equations.		•	
	(8.EE.A) Work with radicals and integer exponents.			•
	(8.EE.B) Understand the connections between proportional relationships, lines, and linear equations.			•
	(8.EE.C) Analyze and solve linear equations and pairs of simultaneous linear equations.			•
Functions (F)	(8.F.A) Define, evaluate, and compare functions.			•
	(8.F.B) Use functions to model relationships between quantities.			•
Geometry (G)	(6.G.A) Solve real-world and mathematical problems involving area, surface area, and volume.	•		
	(7.G.A) Draw, construct, and describe geometrical figures and describe the relationships between them.		•	
	(7.G.B) Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.		•	
	(8.G.A) Understand congruence and similarity using physical models, transparencies, or geometry software.			•
	(8.G.B) Understand the Pythagorean Theorem.			•
	(8.G.C) Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.			•
Statistics and Probability (SP)	(6.SP.A) Develop understanding of statistical variability.	•		
	(6.SP.B) Summarize and describe distributions.	•		
	(7.SP.A) Use random sampling to draw inferences about a population.		•	
	(7.SP.B) Draw informal comparative inferences about two populations.		•	
	(7.SP.C) Investigate chance processes and develop, use, and evaluate probability models.		•	
	(8.SP.A) Investigate patterns of association in bivariate data.			•

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6th Grade Organized by Conceptual Category Only Including Clusters from 6th Grade:

Domain	Cluster	6th	7th	8th
Ratios and Proportions (RP)	(6.RP.A) Understand ratio concepts and use ratio rasoning to solve problems.	•		
The Number System (NS)	(6.NS.A) Apply and extend previous understanding of multiplication and division to divide fractions by fractions.	•		
	(6.NS.B) Compute fluently with multi-digit numbers and find common factors and multiples.	•		
	(6.NS.C) Apply and extend previous understandings of numbers to the systems of rational numbers.	•		
Expressions and Equations (EE)	(6.EE.A) Apply and extend previous understadings of arithmetic to algebraic expressions.	•		
	(6.EE.B) Reason about and solve one-variable equations and inequalities.	•		
	(6.EE.C) Represent and analyze quantitative relationships between dependent and inependent variables.	•		
Geometry (G)	(6.G.A) Solve real-world and mathematical problems involving area, surface area, and volume.	•		
Statistics and Probability (SP)	(6.SP.A) Develop understanding of statistical variability.	•		
	(6.SP.B) Summarize and describe distributions.	•		

7th Grade Organized by Conceptual Category Only Including Clusters from 7th Grade:

Domain	Cluster	6th	7th	8th
Ratios and Proportions (RP)	(7.RP.A) Analyze proportional relationships and use them to solve real-world problems.		•	
The Number System (NS)	(7.NS.A) Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.		•	
Expressions and Equations (EE)	(7.EE.A) Use properties of operations to generate equivalent expressions.		•	
	(7.EE.B) Solve real-life and mathematical problems using numerical and algebraic expressions and equations.		•	
Geometry (G)	(7.G.A) Draw, construct, and describe geometrical figures and describe the relationships between them.		•	
	(7.G.B) Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.		•	
Statistics and Probability (SP)	(7.SP.A) Use random sampling to draw inferences about a population.		•	
	(7.SP.B) Draw informal comparative inferences about two populations.		•	
	(7.SP.C) Investigate chance processes and develop, use, and evaluate probability models.		•	

8th Grade Organized by Conceptual Category Only Including Clusters from 8th Grade:

Domain	Cluster	6th	7th	8th
The Number System (NS)	(8.NS.A) Know that there are number that are not rational, and approximate them by rational numbers.			•
Expressions and Equations (EE)	(8.EE.A) Work with radicals and integer exponents.			•
	(8.EE.B) Understand the connections between proportional relationships, lines, and linear equations.			•
	(8.EE.C) Analyze and solve linear equations and pairs of simultaneous linear equations.			•
Functions (F)	(8.F.A) Define, evaluate, and compare functions.			•
	(8.F.B) Use functions to model relationships between quantities.			•
Geometry (G)	(8.G.A) Understand congruence and similarity using physical models, transparencies, or geometry software.			•
	(8.G.B) Understand the Pythagorean Theorem.			•
	(8.G.C) Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.			•
Statistics and Probability (SP)	(8.SP.A) Investigate patterns of association in bivariate data.			•

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Oklahoma Academic Standards - Mathematics: Cluster Analysis

High School Mathematics Organized by Conceptual Category Including Clusters from Algebra 1, Geometry, and Algebra 2:

Conceptual Category	Domain	Cluster	A1	A2	G
Number and Quantity (N)	The Real Number System (N-RN)	(A) Extend the properties of exponents to rational exponents.		•	
		(B) Use properties of exponents and irrational numbers.	•		
	Quantities (N-Q) *	(A) Reason quantitatively and use units to solve problems.	•	•	
	The Complex Number System (N-CN)	(A) Perform arithmetic operations with complex numbers.		•	
		(B) Represent complex numbers and their operations on the complex plane. (+)			
		(C) Use complex numbers in polynomial identities and equations.		•	
	Vector and Matrix Quantities (N-VM) (+)	(A) Represent and model with vector quantities. (+)			
		(B) Perform operations on vectors. (+)			
		(C) Perform operations on matrices and use matrices in applications. (+)			
Algebra (A)	Seeing Structure in Expressions (A-SSE)	(A) Interpret the structure of expressions.	•	•	
		(B) Writie expressions in equivalent forms to solve problems.	•	•	
	Arithmetic with Polynomials and Rational Expressions (A-APR)	(A) Perform arithmetic operations on polynomials.	•		
		(B) Undersatnd the relationship between zeros and factors of polynomials.	•	•	
		(C) Use polynomial identities to solve problems.		•	
		(D) Rewrite rational expressions.		•	
	Creating Equations (A-CED)	(A) Create equations that describe numbers or relationships.	•	•	
	Reasoning with Equations and Inequalities (A-REI)	(A) Understand solving equations as a process of reasoning and explain the reasoning.	•	•	
		(B) Solve equations and inequalities in one variable.	•	•	
		(C) Solve systems of equations.	•	•	
		(D) Represent and solve equations and inequalities graphically.	•	•	
Functions (F)	Interpreting Functions (F-IF)	(A) Understand the concepts of a function and use function notation.	•	•	
		(B) Interpret functions that arise in applications in terms of the context.	•	•	
		(C) Analyze functions using different representations.	•	•	
	Building Functions (F-BF)	(A) Build a function that models a relationship between two quantities.	•	•	
		(B) Build new functions from existing functions.	•	•	
	Linear and Exponential Models (F-LE)	(A) Construct and compare linear and exponential models and solve problems.	•	•	
		(B) Interpret expressions for functions in terms of the situation they model.	•	•	
	Trigonometric Functions (F-TF)	(A) Extend the domain of trigonometric functions using the unit circle.		•	
		(B) Model periodic phenomena with trigonometric functions.		•	
		(C) Prove and apply trigonometric identities.		•	
Geometry (G)	Congruence (G-CO)	(A) Experiment with tranformations in the plane.			•
		(B) Understand congruence in terms of rigid motions.			•
		(C) Prove geometric theorems.			•
		(D) Make geometric constructions.			•
	Similarity, Right Triangles, and Trigonometry (G-SRT)	(A) Understand similarity in terms of similarity transformations.			•
		(B) Prove theorems involving similarity.			•
		(C) Define trigonometric ratios and solve problems involving right triangles.			•
		(D) Apply trigonometry to general triangles. (+)			
	Circles (G-C)	(A) Understand and apply theorems about circles.			•
		(B) Find arc lengths and areas of sectors of circles.			•
	Expressing Geometric Properties with Equations (G-GPE)	(A) Translate between the geometric description and the equation for a conic section.		•	•
		(B) Use coordinates to prove simple geometric theorems algebraically.			•
	Geometric Measurement and Dimension (G-GMD)	(A) Explain volume formulas and use them to solve problems.			•
		(B) Visualize relationships between two-dimensional and three-dimensional objects.			•
	Modeling with Geometry (G-MG)	(A) Apply geometric concepts in modeling situations.			•
Statistics and Probability (S)	Interpreting Categorical and Quantitative Data (S-ID)	(A) Summarize, represent, and interpret data on a single count or measurement variable.	•		
		(B) Summarize, represent, and interpret data on two categorical and quantitative variables.	•	•	
		(C) Interpret linear models.	•		
	Making Inferences and Justifying Conclusions (S-IC)	(A) Understand and evaluate random processes underlying statistical experiements.		•	
		(B) Make inferences and justify conclusions from sample surveys, experiments, and observational studies.		•	
	Conditional Probability and the Rules of Probability (S-CP)	(A) Understand independence and conditional probability and use them to interpret data.		•	
		(B) Use the rules of probability to compute probabilities of compound events in a uniform probability model.		•	
	Using Probability to Make Decisions (S-MD) (+)	(A) Calculate expected values and use them to solve problems. (+)			
		(B) Use probability to evaluate outcomes of decisions. (+)			

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Oklahoma Academic Standards - Mathematics: Cluster Analysis

Algebra 1 Organized by Conceptual Category Only Including Clusters from Algebra 1:

Conceptual Category	Domain	Cluster	A1	A2	G
Number and Quantity (N)	The Real Number System (N-RN)	(B) Use properties of exponents and irrational numbers.	•		
	Quantities (N-Q) *	(A) Reason quantitatively and use units to solve problems.	•	•	
Algebra (A)	Seeing Structure in Expressions (A-SSE)	(A) Interpret the structure of expressions.	•	•	
		(B) Writie expressions in equivalent forms to solve problems.	•	•	
	Arithmetic with Polynomials and Rational Expressions (A-APR)	(A) Perform arithmetic operations on polynomials.	•		
		(B) Undersatnd the relationship between zeros and factors of polynomials.	•	•	
	Creating Equations (A-CED)	(A) Create equations that describe numbers or relationships.	•	•	
	Reasoning with Equations and Inequalities (A-REI)	(A) Understand solving equations as a process of reasoning and explain the reasoning.	•	•	
		(B) Solve equations and inequalities in one variable.	•	•	
		(C) Solve systems of equations.	•	•	
		(D) Represent and solve equations and inequalities graphically.	•	•	
Functions (F)	Interpreting Functions (F-IF)	(A) Understand the concepts of a function and use function notation.	•	•	
		(B) Interpret functions that arise in applications in terms of the context.	•	•	
		(C) Analyze functions using different representations.	•	•	
	Building Functions (F-BF)	(A) Build a function that models a relationship between two quantities.	•	•	
		(B) Build new functions from existing functions.	•	•	
	Linear and Exponential Models (F-LE)	(A) Construct and compare linear and exponential models and solve problems.	•	•	
		(B) Interpret expressions for functions in terms of the situation they model.	•	•	
Statistics and Probability (S)	Interpreting Categorical and Quantitative Data (S-ID)	(A) Summarize, represent, and interpret data on a single count or measurement variable.	•		
		(B) Summarize, represent, and interpret data on two categorical and quantitative variables.	•	•	
		(C) Interpret linear models.	•		

Geometry Organized by Conceptual Category Only Including Clusters from Geometry:

Conceptual Category	Domain	Cluster	A1	A2	G
Geometry (G)	Congruence (G-CO)	(A) Experiment with tranformations in the plane.			•
		(B) Understand congruence in terms of rigid motions.			•
		(C) Prove geometric theorems.			•
		(D) Make geometric constructions.			•
	Similarity, Right Triangles, and Trigonometry (G-SRT)	(A) Understand similarity in terms of similarity transformations.			•
		(B) Prove theorems involving similarity.			•
		(C) Define trigonometric ratios and solve problems involving right triangles.			•
	Circles (G-C)	(A) Understand and apply theorems about circles.			•
		(B) Find arc lengths and areas of sectors of circles.			•
	Expressing Geometric Properties with Equations (G-GPE)	(A) Translate between the geometric description and the equation for a conic section.		•	•
		(B) Use coordinates to prove simple geometric theorems algebraically.			•
	Geometric Measurement and Dimension (G-GMD)	(A) Explain volume formulas and use them to solve problems.			•
		(B) Visualize relationships between two-dimensional and three-dimensional objects.			•
	Modeling with Geometry (G-MG)	(A) Apply geometric concepts in modeling situations.			•

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Algebra 2 Organized by Conceptual Category Only Including Clusters from Algebra 2:

Conceptual Category	Domain	Cluster	A1	A2	G
Number and Quantity (N)	The Real Number System (N-RN)	(A) Extend the properties of exponents to rational exponents.		•	
	Quantities (N-Q) *	(A) Reason quantitatively and use units to solve problems.	•	•	
	The Complex Number System (N-CN)	(A) Perform arithmetic operations with complex numbers.		•	
		(C) Use complex numbers in polynomial identities and equations.		•	
Algebra (A)	Seeing Structure in Expressions (A-SSE)	(A) Interpret the structure of expressions.	•	•	
		(B) Writie expressions in equivalent forms to solve problems.	•	•	
	Arithmetic with Polynomials and Rational Expressions (A-APR)	(B) Undersatnd the relationship between zeros and factors of polynomials.	•	•	
		(C) Use polynomial identities to solve problems.		•	
		(D) Rewrite rational expressions.		•	
	Creating Equations (A-CED)	(A) Create equations that describe numbers or relationships.	•	•	
	Reasoning with Equations and Inequalities (A-REI)	(A) Understand solving equations as a process of reasoning and explain the reasoning.	•	•	
		(B) Solve equations and inequalities in one variable.	•	•	
		(C) Solve systems of equations.	•	•	
		(D) Represent and solve equations and inequalities graphically.	•	•	
Functions (F)	Interpreting Functions (F-IF)	(A) Understand the concepts of a function and use function notation.	•	•	
		(B) Interpret functions that arise in applications in terms of the context.	•	•	
		(C) Analyze functions using different representations.	•	•	
	Building Functions (F-BF)	(A) Build a function that models a relationship between two quantities.	•	•	
		(B) Build new functions from existing functions.	•	•	
	Linear and Exponential Models (F-LE)	(A) Construct and compare linear and exponential models and solve problems.	•	•	
		(B) Interpret expressions for functions in terms of the situation they model.	•	•	
	Trigonometric Functions (F-TF)	(A) Extend the domain of trigonometric functions using the unit circle.		•	
		(B) Model periodic phenomena with trigonometric functions.		•	
		(C) Prove and apply trigonometric identities.		•	
Geometry (G)	Expressing Geometric Properties with Equations (G-GPE)	(A) Translate between the geometric description and the equation for a conic section.		•	•
Statistics and Probability (S)	Interpreting Categorical and Quantitative Data (S-ID)	(B) Summarize, represent, and interpret data on two categorical and quantitative variables.	•	•	
	Making Inferences and Justifying Conclusions (S-IC)	(A) Understand and evaluate random processes underlying statistical experiements.		•	
		(B) Make inferences and justify conclusions from sample surveys, experiments, and observational studies.		•	
	Conditional Probability and the Rules of Probability (S-CP)	(A) Understand independence and conditional probability and use them to interpret data.		•	
		(B) Use the rules of probability to compute probabilities of compound events in a uniform probability model.		•	