

Scope & Sequence- Teaching Textbooks Pre-Algebra to Pre-Calculus

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Whole Numbers	✓	✓	✓		✓
Represent numbers in different forms	✓	✓	✓		✓
Compare and order numbers	✓	✓	✓		✓
Operations with Whole Numbers	✓	✓	✓		✓
Word problems on whole number operations	✓	✓	✓		✓
Divisibility	✓				
Factors	✓	✓	✓		✓
Prime Numbers	✓	✓	✓		
Prime Factorization	✓	✓	✓		
Greatest Common Factor		✓			
Least Common Multiple/Denominator	✓	✓	✓		✓
Properties of numbers	✓	✓	✓		✓
Associative property	✓	✓	✓		✓
Commutative property	✓	✓	✓		✓
Distributive property	✓	✓	✓		✓
Identity property	✓	✓	✓		✓
Zero property	✓	✓	✓		✓
Inverse property	✓	✓	✓		✓
Properties of equality/inequality				✓	
Add., Subt., Mult., Div. property				✓	
Substitution property				✓	
Transitive property				✓	
Reflexive, Symmetric properties				✓	
Whole greater than parts property				✓	
Inverse operations	✓	✓	✓		✓
Rounding numbers	✓	✓	✓		✓
Estimation	✓	✓	✓		✓
Fractions	✓	✓	✓		
Operations with fractions	✓	✓	✓		
Proper/Improper fractions	✓	✓			
Fractions represented on number line		✓			
Comparing fractions	✓	✓			
Reducing fractions	✓	✓	✓		
Factoring and canceling fractions	✓	✓			
Mixed numbers	✓	✓			
Decimals	✓	✓			

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Operations with Decimals	✓	✓			
Repeating decimals	✓	✓			
Dollars and Cents	✓	✓			
Percents	✓	✓	✓		✓
Calculating percent of a number	✓	✓	✓		
Finding the percent	✓	✓	✓		
Fractional percents	✓	✓	✓		
Application of %s - interest	✓	✓			
Application of %s - grades	✓	✓			
Exponents and Powers	✓	✓	✓		✓
Operations with Powers	✓	✓	✓		✓
Exponent of 1 or 0			✓		✓
Roots	✓	✓	✓		✓
Square roots	✓	✓	✓		✓
Higher roots	✓	✓	✓		✓
Operations with Roots	✓	✓	✓		✓
Scientific Notation	✓	✓	✓		✓
Absolute Value	✓	✓	✓		✓
Order of Operations	✓	✓	✓		
Parentheses	✓	✓	✓		
Brackets and Braces		✓	✓		
Order of operations w. exponents	✓	✓	✓		
Negative Numbers	✓	✓	✓		✓
Integers	✓	✓	✓		✓
Operations with Integers	✓	✓	✓		✓
Integers on the number line	✓	✓	✓		✓
Rational and Irrational numbers			✓		✓
Operations with irrational numbers			✓		✓
Simplifying irrationals			✓		✓
Complex numbers			✓		✓
Imaginary number i			✓		✓
Operations with Complex numbers			✓		✓
Units of Measure	✓	✓			
Length (US Cust.)	✓	✓		✓	
Mass/Weight (US Cust.)		✓			
Capacity (US Cust.)	✓	✓		✓	
Length (Metric)	✓	✓		✓	
Mass/Weight (Metric)		✓			
Capacity (Metric)	✓	✓		✓	

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Area	✓	✓		✓	✓
Volume	✓	✓		✓	✓
Temperature		✓	✓		
Metric System	✓	✓	✓		
English System	✓	✓	✓		
Unit Conversions	✓	✓	✓	✓	✓
Algebra	✓	✓	✓	✓	✓
Variables	✓	✓	✓	✓	✓
Algebra notation	✓	✓	✓	✓	✓
Expressions vs. equations	✓	✓	✓		✓
Rational expressions	✓	✓	✓		✓
Operations with rational expressions	✓	✓	✓		✓
Coefficients	✓	✓	✓		✓
Combining like terms	✓	✓	✓		✓
Equations	✓	✓	✓		✓
Solving simple equations (1 operation)	✓	✓	✓		✓
Solving equations with 2+ operations	✓	✓	✓		✓
Solving equations with distributing	✓	✓	✓		✓
Linear equations	✓	✓	✓		✓
Solving Linear Equations in one var.	✓	✓	✓		
Ratios and proportions	✓	✓	✓		
Cross-Multiplying	✓	✓	✓		
Rate of change and slope	✓	✓	✓	✓	✓
Slope-intercept Form	✓	✓	✓		✓
Point-slope Form		✓	✓		✓
Modeling with Linear Equations		✓	✓		✓
Quadratic Equations		✓	✓		✓
Solve by Factoring		✓	✓		✓
Solve by Completing the Square		✓	✓		✓
Solve by Quadratic Formula		✓	✓		✓
Third-degree equations and above			✓		✓
Solving third-degree equations			✓		✓
Powers	✓	✓	✓		✓
Add/sub. exponents to mult./div. powers		✓	✓		✓
Polynomials	✓	✓	✓		✓
Degree of a polynomial		✓	✓		✓
Monomial, binomial, polynomial		✓	✓		✓
Operations with polynomials		✓	✓		✓
Simplifying polynomials	✓	✓	✓		✓

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Factoring polynomials	✓	✓	✓		✓
Polynomials w. several variables			✓		✓
Perfect square trinomials			✓		✓
Difference of two squares			✓		✓
Fundamental Theorem of Algebra			✓		
Solving eqns. by factoring polynomials			✓		✓
Radicals	✓	✓	✓		✓
Inequalities	✓	✓	✓		✓
Solving inequalities	✓	✓	✓		✓
Graphing inequalities on number line	✓		✓		✓
Absolute value and inequalities			✓		✓
Compound inequalities		✓	✓		✓
Two-variable inequalities		✓	✓		✓
Graphing 2-var. ineq.		✓	✓		✓
Systems of 2-var. ineq.		✓	✓		✓
Systems of Equations		✓	✓		✓
Solving by adding and subtracting		✓	✓		✓
Solving by substitution		✓	✓		✓
Graphing systems		✓	✓		✓
Solving by graphing		✓	✓		✓
Inconsistent and dependent systems		✓	✓		✓
Solving with graphing calculator		✓	✓		✓
Solving a System with Determinants			✓		✓
More on Determinants					✓
Solving Systems with Matrices			✓		✓
Matrix Algebra			✓		✓
Functions	✓	✓	✓	✓	✓
Relations & functions	✓	✓	✓	✓	✓
Solving for other variable		✓	✓		✓
Independent & Dependent Variables	✓	✓	✓		✓
Domain and Range	✓		✓		✓
Functional notation			✓		✓
Linear functions	✓	✓	✓	✓	✓
Nonlinear functions		✓	✓		✓
Quadratic functions		✓	✓		✓
Exponential functions			✓		✓
The Base e			✓		✓
Logarithmic functions			✓		✓
Solving Logarithmic equations			✓		✓

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Natural logarithms			✓		✓
Rational functions			✓		✓
Radical functions			✓		✓
Power Functions			✓		✓
Direct and Inverse Variations		✓	✓		✓
Piecewise-Defined Functions					✓
Absolute Value Function and Step Functions			✓		✓
Trigonometric functions				✓	✓
Graphing Concepts	✓	✓	✓	✓	✓
Number line	✓	✓	✓	✓	✓
Coordinate plane	✓	✓	✓	✓	✓
Graphing points, ordered pairs	✓	✓	✓	✓	✓
Quadrants	✓	✓	✓	✓	✓
Graphing equations	✓			✓	
Graphing linear eqns. and slope	✓	✓	✓	✓	✓
Slope	✓	✓	✓	✓	✓
x- and y-intercepts	✓	✓	✓	✓	✓
Slope-intercept form	✓	✓	✓	✓	✓
Point-slope Form		✓	✓		✓
Horizontal and vertical lines	✓	✓	✓	✓	✓
Graphing quadratics (parabola)	✓	✓	✓		✓
Graphing higher order equations		✓	✓		✓
Graphing systems of equations		✓	✓		✓
Graphing 1-var. inequalities (on # line)	✓	✓	✓		
Graphing 2-var. inequalities (on plane)		✓	✓		✓
Distance Formula	✓		✓	✓	✓
Midpoint Formula	✓			✓	
Use of a graphing calculator		✓	✓		✓
Analytic Geometry	✓	✓	✓	✓	✓
Circles			✓	✓	✓
Parabolas		✓	✓		✓
Ellipses			✓		✓
Hyperbolas			✓		✓
General Equation for Conics					✓
Translation of Axes			✓	✓	✓
Rotation of Axes					✓
Word problems	✓	✓	✓	✓	✓
Real World Applications	✓	✓	✓	✓	✓
Percent problems	✓	✓	✓		
Ratio and proportion problems	✓	✓	✓	✓	✓

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Rate problems	✓	✓	✓		✓
Work problems	✓	✓	✓		✓
Distance problems	✓	✓	✓		✓
Mixture problems			✓		✓
Geometry	✓			✓	
Simple Geometry Concepts	✓			✓	
Inductive Reasoning				✓	✓
Deductive Reasoning				✓	✓
Logic				✓	✓
Proofs				✓	✓
Points, Planes	✓			✓	
Lines	✓			✓	
Line segments	✓			✓	
Rays	✓			✓	
Angles	✓			✓	✓
Angle measure	✓			✓	✓
Adjacent, vertical angles	✓			✓	
Complementary, supplementary angles	✓			✓	
Perpendicular lines	✓			✓	
Parallel lines	✓			✓	
Transversal, Alt. Int. & Corresp. Angles	✓				
Triangles	✓			✓	
Types of triangles (by side or angle)	✓			✓	
Sum of angles = 180	✓				
Triangle inequality theorem				✓	
Congruent, similar triangles	✓			✓	
Pythagorean Theorem	✓	✓	✓	✓	✓
Finding sides with Pyth. Thm.	✓	✓	✓	✓	✓
Applications of Pyth. Thm.		✓	✓	✓	✓
Quadrilaterals	✓		✓	✓	
Trapezoid	✓			✓	
Parallelogram	✓			✓	
Rhombus	✓			✓	
Rectangle	✓			✓	
Square	✓		✓	✓	
Polygons	✓			✓	
Pentagon	✓			✓	
Hexagon	✓			✓	
Heptagon	✓			✓	

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Octagon	✓			✓	
Interior angles	✓			✓	
Exterior angles				✓	
Perimeter and area of polygons	✓			✓	
Regular polygons	✓			✓	
Circles	✓		✓	✓	✓
Radius and diameter	✓		✓	✓	✓
Chord	✓			✓	
Circumference	✓			✓	✓
π	✓			✓	✓
Area of a Circle	✓			✓	✓
Secant line	✓			✓	
Tangent line	✓			✓	
Semicircles	✓			✓	
Arcs, central angles, arc measure				✓	✓
Perimeter	✓			✓	
Area	✓	✓	✓	✓	✓
Area of a Rectangle	✓		✓	✓	✓
Area of a Square	✓	✓	✓	✓	
Area of a Parallelogram	✓			✓	
Base and Altitude	✓			✓	
Area of a Triangle	✓	✓		✓	
Area of a Trapezoid	✓			✓	
Area of combined figures	✓			✓	
Area of a circle	✓			✓	
Partition into parts with equal areas	✓			✓	
Congruent figures	✓			✓	
Corresponding sides and angles	✓			✓	
Similar figures	✓			✓	
Symmetry	✓			✓	
Transformations	✓	✓	✓	✓	✓
Reflections	✓	✓	✓	✓	✓
Rotations		✓	✓	✓	✓
Translations		✓	✓	✓	✓
On the coordinate plane		✓	✓	✓	✓
Solid figures	✓		✓	✓	
Polyhedron	✓			✓	
Cube	✓		✓	✓	
Prism	✓			✓	

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Rectangular Prism	✓			✓	
Triangular Prism	✓			✓	
Triangular Pyramid	✓			✓	
Rectangular Pyramid	✓			✓	
Cylinder	✓			✓	
Cone	✓			✓	
Sphere	✓			✓	
Volume of solid figures	✓		✓	✓	
Volume of a Cube	✓		✓	✓	
Volume of a Prism	✓			✓	
Volume of a Cylinder	✓			✓	
Volume of a Pyramid	✓			✓	
Volume of a Cone	✓			✓	
Surface Area of Solid Figures	✓			✓	
Surface Area of a Prism	✓			✓	
Surface Area of a Cylinder	✓			✓	
Surface Area of a Pyramid	✓			✓	
Surface Area of a Cone	✓			✓	
Non-Euclidean Geometry				✓	
Trigonometry				✓	✓
Measuring Distances with Trigonometric Ratios				✓	✓
Solving a Right Triangle				✓	✓
Law of Cosines					✓
Law of Sines					✓
Trigonometric Functions					✓
Creating a Periodic Function					✓
The Sine and Cosine Functions					✓
Radians					✓
Transformations and Trig Functions					✓
Working with Trig Functions					✓
Other Trig Functions					✓
Combining Trig Functions					✓
Inverse Trig Functions					✓
Trigonometric Equations					✓
Data and Statistics	✓	✓	✓		✓
Represent data	✓	✓	✓		✓
Measures of Center	✓	✓	✓		✓
Average (Mean)	✓	✓	✓		✓
Median	✓	✓	✓		✓

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Mode	✓	✓	✓		✓
Measures of Dispersion	✓	✓	✓		✓
Range	✓	✓	✓		✓
Quartiles		✓			
Box-and-Whisker Plots		✓			
Stem-and-Leaf Plots	✓	✓			
Histograms	✓	✓	✓		
Scatter plots	✓		✓		✓
Correlation	✓		✓		✓
Line of best fit			✓		✓
Regression					✓
Bar Graphs	✓				
Populations & Samples		✓			✓
Fitting a Graph to Data				✓	✓
Scatter plots				✓	✓
Probability	✓	✓	✓		✓
Calculating simple probability	✓	✓	✓		✓
Theoretical vs Experimental Probability	✓	✓	✓		✓
Fundamental Counting Principle	✓	✓	✓		✓
Tree Diagrams	✓	✓	✓		✓
Independent & Dependent Events		✓	✓		✓
Permutations and Combinations			✓		✓
Trigonometric Identities					✓
Basic Trig Identities					✓
Cofunction and Pythagorean Identities					✓
Working with Trig Expressions					✓
Sum and Difference Identities					✓
Double-Angle Identities					✓
Half-Angle Identities					✓
Product-to-Sum Identities					✓
More on Trig Equations					✓
Vectors and Polar Coordinates					✓
Vectors					✓
More Vector Basics					✓
Vectors in the Real World					✓
Parametric Equations					✓
Polar Coordinates					✓
Sequences				✓	✓
Arithmetic Sequences				✓	✓

Topic Sub-Topic	Pre- Algebra	Algebra 1	Algebra 2	Geometry	Pre- Calculus
Geometric Sequences				✓	✓
Sum of a Sequence					✓
Infinite Series					✓
Permutations and Combinations				✓	✓
Introduction to Calculus					✓
The Derivative					✓
Derivatives and Graphing					✓
The Integral					✓
The Integral and Area					✓
Pascal's Triangle					✓
The Binomial Theorem					✓
Synthetic Division					✓
De Moivre's Theorem					✓