



Pre-Algebra

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Competencies and Objectives/Benchmarks		Page References
CONTENT STRAND: Number and Operations		
1. Apply concepts and perform basic operations using real numbers in real-world context.		
1a	Define, classify, and order rational and irrational numbers and their subsets.	SE: 78-83, 228-233, 234-238, 313-318, 469-474
1b	Formulate and solve standard and real-life problems involving addition, subtraction, multiplication, and division of rational numbers.	SE: 3, 5, 6, 7, 26-30, 86-90, 93-97, 100-104, 106-110, 239-244, 245-249, 250-254, 263-267, 268-272, 302-306, 469-474
1c	Apply the concepts of Greatest Common Factor (GCF) and Least Common Multiple (LCM) to monomials with variables.	SE: 196-200, 257-261
1d	Simplify and evaluate expressions using order of operations and use real number properties to justify solutions.	SE: 32-36, 37-41, 43-47, 124-128, 129-133, 180-184
1e	Explain the rules of exponents related to multiplication and division of terms with exponents.	SE: 203-207
1f	Recognize and appropriately use exponential and scientific notation.	SE: 214-218
1g	Explain and use the inverse relationship between square roots and squares.	SE: 462-463, 464-468
CONTENT STRAND: Number and Operations		
2. Use properties to formulate and simplify algebraic expressions, solve linear equations and inequalities and apply principles of graphing.		
2a	Simplify and evaluate numerical and algebraic expressions.	SE: 32-36, 37-41, 124-128, 129-133, 180-184, 196-200
2b	Apply properties of real numbers with an emphasis on the distributive properties of multiplication over addition and subtraction.	SE: 43-47, 86-90, 100-104, 124-128, 129-133, 136-140, 141-145, 147-151, 153-157, 420-423, 424-428, 706-709, 710-

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		713,716-719
2c	Solve and check equations and inequalities using one variable.	SE: 49-53, 134-135, 136-140, 141-145, 147-151, 153-157, 268-272, 418-419, 420-423, 424-428, 435-439, 441-445, 446-450
2d	Model inequalities (and their solutions) on a number line.	SE: 430-434, 435-439, 441-445, 446-450
2e	Graph linear equations and non-linear equations ($y = x^2$) using multiple methods including t-tables and slope-intercept.	SE: 365-369, 390, 391-394, 395-396, 726-730, 731
2f	Given a linear graph, identify its slope as positive, negative, undefined, or zero, and interpret slope as rate of change.	SE: 371-375, 384-389, 390, 391-394, 395-396
2g	Determine slope, x-intercept, and y-intercept from a graph and/or equation in slope-intercept or standard form.	SE: 384-389, 390, 391-394
2h	Add, subtract, and multiply monomials and binomials.	SE: 705, 706-709, 710-713, 715, 716-719
2i	Predict characteristics of a graph given an equation or t-table.	SE: 403-407
CONTENT STRAND: Geometry		
3. Apply geometric principles to polygons, angles, and two- and three-dimensional figures.		
3a	Locate and identify angles formed by parallel lines cut by a transversal(s) (e.g., adjacent, vertical, complementary, supplementary, corresponding, alternate interior, and alternate exterior).	SE: 512-517
3b	Find missing angle measurements for parallel lines cut by a transversal(s) and for a vertex of a polygon.	SE: 532-536, 539-543
3c	Explain the Pythagorean Theorem and apply it to solve routine and non-routine problems.	SE: 483-484, 485-490
3d	Solve real-world and non-routine problems involving congruent and similar figures.	SE: 497-502, 518-523, 607, 608-613
3e	Use two-dimensional representations (nets) of three-dimensional objects to describe objects from various perspectives.	SE: 574, 597-601, 602-606
CONTENT STRAND: Measurement		
4. Understand measurable attributes of objects and apply various formulas in problem solving situations.		
4a	Solve real-world application problems that include length, area, perimeter, and circumference using standard measurements.	SE: 162-167, 545-550, 551-556, 558-562, 563
4b	Develop, analyze, and explain methods for solving problems involving proportions, such as scaling and finding equivalent ratios.	SE: 302-306, 308-312
4c	Use formulas and/or appropriate measuring tools to	SE: 162-167, 545-550, 551-556,

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	find length and angle measures (to appropriate levels of precision), perimeter, area, volume, and surface area of polygons, circles, spheres, cones, pyramids, and composite or irregular figures.	582, 583-588, 589-594, 596, 597-601, 602-606, 607
CONTENT STRAND: Data Analysis & Probability		
5. Interpret, organize, and make predictions about a variety of data using concepts of probability.		
5a	Use a given mean, mode, median, and range to summarize and compare data sets including investigation of the different effects that change in data values have on these measures.	SE: 274-279, 280, 626-631, 633-637, 638-642
5b	Select the appropriate measures of central tendency for a particular purpose.	SE: 274-279, 280
5c	Make and list conjectures by calculating probability for experimental or simulated contexts.	SE: 665-669, 670-674, 675, 676-680, 682-687, 688-689
5d	Construct and interpret scatter plots to generalize trends from given data sets.	SE: 60, 61-66, 67-68