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	Quantitative Problem Solving Standards and Content Indicators
Q.1	**Apply number sense concepts, including ordering rational numbers, absolute value, multiples, factors, and exponents**
Q.1.a	Order fractions and decimals, including on a number line.
Q.1.b	Apply number properties involving multiples and factors (Identity Property, Commutative Property (CP) – (Addition, Multiplication), Associative Property (AP) – (Addition, Multiplication), Distributive Property (DP) – ICAD), such as using the least common multiple, greatest common factor, or distributive property to rewrite numeric expressions.
Q.1.c	Apply rules of exponents in numerical expressions with rational exponents to write equivalent expressions with rational exponents.
Q.1.d	Identify absolute value or a rational number as its distance from zero on the number line and determine the distance between two rational numbers on the number line, including using the absolute value of their difference.
Q.2	**Add, subtract, multiply, divide, and use exponents and roots of rational, fraction, and decimal numbers**
Q.2.a	Perform addition (Whole Numbers, Decimals, Fractions, Integers), subtraction- (Whole Numbers, Decimals, Fractions, Integers), multiplication - (Whole Numbers, Decimals, Fractions, Integers), and division (Whole Numbers, Decimals, Fractions, Integers) on rational numbers.
Q.2.b	Perform computations (PEMDAS – Example #1, Example #2) and write numerical expressions with squares and square roots of rational numbers.
Q.2.c	Perform computations and write numerical expressions with cubes and cube roots of rational numbers.
Q.2.d	Determine when a numerical expression is undefined – Dividing by zero.
Q.2.e	Solve single-step addition , single-step division or multiplication + multistep real-world arithmetic problems involving the four operations with rational numbers, including those involving scientific notation.
Q.3	**Calculate and use ratios, percents, and scale factors**
Q.3.a	(Ratios, Proportions, Percent) Compute unit rates. Examples include but are not limited to: unit pricing, constant speed, persons per square mile, BTUs (British thermal units) per cubic foot.

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Q.3.b	Use scale factors to determine the magnitude of a size change. Convert between actual drawings and scale drawings.
Q.3.c	Solve multistep, real-world arithmetic problems using ratios or proportions including those that require converting units of measure.
Q.3.d	Solve two-step, real-world arithmetic problems involving percent. Examples include but are not limited to: simple interest, tax, markups and markdowns, gratuities and commissions, percent increase and decrease.
Q.4	**Calculate dimensions, perimeter, circumference, and area of two-dimensional figures**
Q.4.a	Compute the area and perimeter of triangles and rectangles. Determine side lengths of triangles and rectangles when given area or perimeter.
Q.4.b	Compute the area and circumference of circles. Determine the radius or diameter when given area or circumference.
Q.4.c	Compute the perimeter of a polygon. Given a geometric formula, compute the area of a polygon. Determine side lengths of the figure when given the perimeter or area.
Q.4.d	Compute perimeter and area of 2-D composite geometric figures, which could include circles, given geometric formulas as needed.
Q.4.e	Use the Pythagorean theorem to determine unknown side lengths in a right triangle.
Q.5	**Calculate dimensions, surface area, and volume of three-dimensional figures**
Q.5.a	When given geometric formulas, compute volume and surface area of rectangular prisms. Solve for side lengths or height, when given volume or surface areas.
Q.5.b	When given geometric formulas, compute volume and surface area of cylinders. Solve for height, radius, or diameter when given volume or surface area.
Q.5.c	Use geometric formulas to compute volume and surface area of right prisms. Solve for side lengths or height, when given volume or surface area.
Q.5.d	When given geometric formulas, compute volume and surface area of right pyramids and cones. Solve for side lengths, height, radius, or diameter when given volume or surface area.
Q.5.e	When given geometric formulas, compute volume and surface area of spheres. Solve for radius or diameter when given the surface area.
Q.5.f	Compute surface area and volume of composite 3-D geometric figures, given geometric formulas as needed.
Q.6	**Interpret and create data displays**

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Q.6.a	Represent, display, and interpret categorical data in bar graphs or circle graphs.
Q.6.b	Represent, display, and interpret data involving one variable plots on the real number line including dot plots, histograms, and box plots.
Q.6.c	Represent, display, and interpret data involving two variables in tables and the coordinate plane including scatter plots and grants.
Q.7	**Calculate and use mean, median, mode, and weighted average**
Q.7.a	Calculate the mean, median, mode and range. Calculate a missing data value, given the average and all the missing data values but one, as well as calculating the average, given the frequency counts of all the data values, and calculating a weighted average.
Q.8	**Utilize counting techniques and determine probabilities**
Q.8.a	Use counting techniques to solve problems and determine combinations and permutations.
Q.8.b	Determine the probability of simple and compound events.
	Algebraic Problem-Solving Standards and Content Indicators
A.1	**Write, evaluate, and compute with expressions and polynomials**
A.1.a	Add, subtract, factor, multiply, and expand linear expressions with rational coefficients.
A.1.b	Evaluate linear expressions by substituting integers for unknown quantities.
A.1.c	Write linear expressions as part of word-to-symbol translations or to represent common settings.
A.1.d	Add, subtract, multiply polynomials, including multiplying two binomials, or divide factorable polynomials.
A.1.e	Evaluate polynomial expressions by substituting integers for unknown quantities.
A.1.f	Factor polynomial expressions.
A.1.g	Write polynomial expressions as part of word-to-symbol translations or to represent common settings.
A.1.h	Add, subtract, multiply and divide rational expressions.
A.1.i	Evaluate rational expressions by substituting integers for unknown quantities.
A.1.j	Write rational expressions as part of word-to-symbol translations or to represent common settings.
A.2	**Write, manipulate, solve, and graph linear equations**

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A.2.a	Solve one-variable linear equations with rational number coefficients, including equations for which solutions require expanding expressions using the distributive property and collecting like terms or equations with coefficients represented by letters.
A.2.b	Solve real-world problems involving linear equations.
A.2.c	Write one-variable and multi-variable linear equations to represent context.
A.2.d	Solve a system of two simultaneous linear equations by graphing, substitution, or linear combination. Solve real-world problems leading to a system of linear equations.
A.3	**Write, manipulate, solve, and graph linear inequalities**
A.3.a	Solve linear inequalities in one variable with rational number coefficients.
A.3.b	Identify or graph the solution to a one variable linear inequality on a number line.
A.3.c	Solve real-world problems involving inequalities.
A.3.d	Write linear inequalities in one variable to represent context.
A.4	**Write, manipulate, and solve quadratic equations**
A.4.a	Solve quadratic equations in one variable with rational coefficients and real solutions, using appropriate methods (e.g., quadratic formula, completing the square, factoring, inspection).
A.4.b	Write one-variable quadratic equations to represent context.
A.5	**Connect and interpret graphs and functions**
A.5.a	Locate points in the coordinate plane.
A.5.b	Determine the slope of a line from a graph, equation, or table.
A.5.c	Interpret unit rate as the slope in a proportional relationship.
A.5.d	Graph two-variable linear equations.
A.5.e	For a function that models a linear or nonlinear relationship between two quantities, interpret key features of graphs and tables in terms of quantities, and sketch graphs
	showing key features of graphs and tables in terms of quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries, end behavior, and periodicity.
A.6	**Connect coordinates, lines, and equations**

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A.6.a	Write the equation of a line with a given slope through a given point.
A.6.b	Write the equation of a line passing through two given distinct points.
A.6.c	Use slope to identify parallel and perpendicular lines and to solve geometric problems.
A.7	**Compare, represent, and evaluate functions**
A.7.a	Compare two different proportional relationships represented in different ways. Examples include but are not limited to: compare a distance-time graph to a distance-time equation to determine which of two moving objects has a greater speed.
A.7.b	Represent or identify a function in a table or graph as having exactly one output (one element in the range) for each input (each element in the domain).
A.7.c.	Evaluate linear and quadratic functions for values in their domain when represented using function notation.
A.7.d.	Compare properties of two linear or quadratic functions each represented in a different way (algebraically, numerically in tables, graphically or by verbal descriptions). Examples include but are not limited to: given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

Notes:

- Information on the GED® tests is based on the *Assessment Guide for Educators*, GED Testing Service®.