

GED Mathematics Assessment Targets	Learning Upgrade GED Math
Quantitative Problem-Solving Assessment Targets	
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.	Lesson 1
Q.1.b Apply number properties involving multiples and factors, such as using the least common multiple, greatest common factor, or distributive property to rewrite numeric expressions.	Lesson 14
Q.1.c Apply rules of exponents in numerical expressions with rational exponents to write equivalent expressions with rational exponents.	Lessons 2, 36
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.	Lesson 1
Q.2 Add, subtract, multiply, divide, and use exponents and roots of rational, fraction, and decimal numbers	
Q.2.a Perform addition, subtraction, multiplication, and division on rational numbers.	Lessons 4, 5
Q.2.b Perform computations and write numerical expressions with squares and square roots of rational numbers.	Lessons 2, 3
Q.2.c Perform computations and write numerical expressions with cubes and cube roots of rational numbers.	Lessons 2, 3
Q.2.d Determine when a numerical expression is undefined.	
Q.2.e Solve single-step or multistep real-world arithmetic problems involving the four operations with rational numbers, including those involving scientific notation.	Lessons 3, 4, 5, 19, 20
Q.3 Calculate and use ratios, percents, and scale factors	
Q.3.a 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.	Lessons 19, 20, 21, 43
Q.3.b Use scale factors to determine the magnitude of a size change. Convert between actual drawings and scale drawings.	Lesson 49
Q.3.c Solve multistep, real-world arithmetic problems using ratios or proportions including those that require converting units of measure.	Lessons 8, 9, 10, 20, 21, 22, 43
Q.3.d Solve two-step, real-world arithmetic problems involving percents. Examples include but are not limited to: simple interest, tax, markups and markdowns, gratuities and commissions, percent increase and decrease.	Lessons 8, 9, 10
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.	Lessons 45, 47
Q.4.b Compute the area and circumference of circles. Determine the radius or diameter when given area or circumference.	Lesson 48
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.	Lesson 46

GED Mathematics Assessment Targets	Learning Upgrade GED Math
Q.4.d Compute perimeter and area of 2-D composite geometric figures, which could include circles, given geometric formulas as needed.	Lesson 47
Q.4.e Use the Pythagorean theorem to determine unknown side lengths in a right triangle.	Lesson 50
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.	Lessons 51, 52, 53
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.	Lesson 53
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.	Lessons 51, 52, 53
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.	Lesson 53
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	
Q.6.a Represent, display, and interpret categorical data in bar graphs or circle graphs.	Lesson 54
Q.6.b Represent, display, and interpret data involving one variable plots on the real number line including dot plots, histograms, and box plots.	Lesson 56
Q.6.c Represent, display, and interpret data involving two variables in tables and the coordinate plane including scatter plots and graphs.	Lessons 54, 57
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.	Lessons 55, 56
Q.8 Utilize counting techniques and determine probabilities	
Q.8.a Use counting techniques to solve problems and determine combinations and permutations.	Lessons 58, 59
Q.8.b Determine the probability of simple and compound events.	Lessons 58, 59
Algebraic Problem Solving Assessment Topics	
A.1 Write, evaluate, and compute with expressions and polynomials	
A.1.a Add, subtract, factor, multiply, and expand linear expressions with rational coefficients.	Lessons 12, 13, 14, 33, 34, 35
A.1.b Evaluate linear expressions by substituting integers for unknown quantities.	Lesson 17
A.1.c Write linear expressions as part of word-to-symbol translations or to represent common settings.	Lesson 11
A.1.d Add, subtract, multiply polynomials, including multiplying two binomials, or divide factorable polynomials.	Lessons 33, 34, 35, 36, 37
A.1.e Evaluate polynomial expressions by substituting integers for unknown quantities.	Lesson 16

GED Mathematics Assessment Targets	Learning Upgrade GED Math
A.1.f Factor polynomial expressions.	Lesson 38
A.1.g Write polynomial expressions as part of word-to-symbol translations or to represent common settings.	Lesson 11
A.1.h Add, subtract, multiply and divide rational expressions.	Lessons 7, 12, 13, 14
A.1.i Evaluate rational expressions by substituting integers for unknown quantities.	Lessons 16, 17
A.1.j Write rational expressions as part of word-to-symbol translations or to represent common settings.	Lesson 11
A.2 Write, manipulate, solve, and graph linear equations	
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.	Lessons 14, 15, 16, 17, 18
A.2.b Solve real-world problems involving linear equations.	Lessons 15, 16, 17, 18
A.2.c Write one-variable and multi-variable linear equations to represent context.	Lessons 11, 15, 17
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.	Lessons 31, 32
A.3 Write, manipulate, solve, and graph linear inequalities	
A.3.a Solve linear inequalities in one variable with rational number coefficients.	Lesson 29
A.3.b Identify or graph the solution to a one variable linear inequality on a number line.	Lesson 30
A.3.c Solve real-world problems involving inequalities.	Lessons 29, 30
A.3.d Write linear inequalities in one variable to represent context.	Lesson 29
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, and inspection).	Lessons 39, 40, 41, 42
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.	Lessons 25, 26
A.5.b Determine the slope of a line from a graph, equation, or table.	Lesson 27
A.5.c Interpret unit rate as the slope in a proportional relationship.	Lessons 22, 28
A.5.d Graph two-variable linear equations.	Lesson 26
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.	Lesson 24

GED Mathematics Assessment Targets	Learning Upgrade GED Math
A.6 Connect coordinates, lines, and equations	
A.6.a Write the equation of a line with a given slope through a given point.	Lesson 28
A.6.b Write the equation of a line passing through two given distinct points.	Lesson 28
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.	Lessons 21, 22
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).	Lessons 6, 21, 23
A.7.c Evaluate linear and quadratic functions for values in their domain when represented using function notation.	Lesson 23
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.	Lesson 24