ipdae INSTITUTE FOR THE PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

GED Mathematics Reasoning PLD Matrix

Domain	Level 1 Below Passing Limited/Inconsistent		Level 2 Passing (HS Equivalency) Satisfactory				Level 3 College Ready Strong			Level 4 College Ready + Credit Outstanding	
1. Rational Numbers	Apply number properties involving multiples and factors.		Apply number properties involving multiples and factors.								
	Compute unit rates.		Compute unit rates.	Perform computations with rational numbers.	Determine when a numerical expression is undefined.		Determine when a numerical expression is undefined.				
	Solve real-world problems using rational numbers.		Solve real-world problems using rational numbers.	Solve arithmetic and real-world problems involving ratios and proportions.	Solve multi-step arithmetic and real-world problems involving percents.	Use scale factors to determine the magnitude of a size change, and convert between actual drawings and scale drawings.	Solve arithmetic and real-world problems involving ratios and proportions.				
			Order fractions and decimals, including on a number line.	Identify absolute value of a rational number as its distance from 0 on the number line	Determine the distance between two rational numbers on the number line.		Identify absolute value of a rational number as its distance from 0 on the number line.	Determine the distance between two rational numbers on the number line.			
			Simplify numerical expressions with rational exponents.	Compute numerical expressions with squares and square roots of positive, rational numbers.	Compute numerical expressions with cubes and cube roots of positive, rational numbers.		Simplify numerical expressions with rational exponents.	Compute numerical expressions with squares and square roots of positive, rational numbers.			
2. Measurement	Compute the area and perimeter of triangles and rectangles.	Determine side lengths of triangles and rectangles when given area or perimeter.	Compute the area and perimeter of triangles and rectangles.	Compute the area and perimeter of polygons.	Compute the area and circumference of circles.	Compute the area and perimeter of composite figures.					
			Determine side lengths of triangles and rectangles when given area or perimeter.	Use the Pythagorean theorem to determine unknown side lengths in a right triangle.	Determine side lengths of polygons when given area or perimeter.	Determine the radius and diameter of circles when given area or circumference.	Use the Pythagorean theorem to determine unknown side lengths in a right triangle.				
			Compute volume and surface area of rectangular prisms.	Compute volume and surface area of right prisms.	Compute volume and surface area of right pyramids and cones.	Compute volume and surface area of cylinders.					
					Compute volume and surface area of composite figures.	Compute volume and surface area of spheres.	Compute volume and surface area of composite figures	Compute volume and surface area of cylinders.		Compute volume and surface area of composite figures.	
			Determine side lengths and height of right prisms when given volume or surface area.	Determine side lengths and height of rectangular prisms when given volume or surface area.	Determine side lengths, radius, diameter, and height of right pyramids and cones when given volume or surface area.	Determine radius, diameter, and height of cylinders, when given volume or surface area.		Determine radius, diameter, and height of cylinders, when given volume or surface area.			
						Determine radius and diameter of spheres when given volume or surface area.					
	Represent, display, and interpret categorical data in tables and scatter plots.	Represent, display, and interpret categorical data in circle and bar graphs.	Calculate the median, mode, and weighted average, and calculate a missing data value, given the average and all the missing data values but one.	Represent, display, and interpret categorical data in dot plots, histograms, and box plots.	Use counting techniques to solve problems and determine combinations and permutations.		Use counting techniques to solve problems and determine combinations and permutations.	Determine the probability of simple and compound events.		Use counting techniques to solve problems and determine combinations and permutations	Determine the probability of simple and compound events
3. Expression and Equations	Evaluate linear expressions.	Write linear expressions to represent context	Write linear expressions to represent context.	Write quadratic equations to represent context.	Write polynomial expressions.	Write rational expressions to represent context.					
	Evaluate polynomial expressions.	Write rational expressions to represent context.	Compute with linear expressions.	Factor polynomial expressions.	Compute with polynomials.		Factor polynomial expressions.	Compute with polynomials.	Compute with rational expressions.		
	Solve real-world problems involving linear equations.	Solve algebraic and real-world problems involving systems of equations.	Solve linear equations in one variable.	Solve quadratic equations in one variable.	Evaluate polynomial expressions.	Evaluate rational expressions.		Solve quadratic equations in one variable.		Solve quadratic equations in one variable.	
			Solve real-world problems involving linear equations.	Solve linear inequalities in one variable.	Identify or graph the solution to a one variable linear inequality on a number line.	Solve real-world problems involving inequalities.	Write linear inequalities to represent context.	Solve linear inequalities in one variable.	Solve real-world problems involving inequalities.	Write linear inequalities to represent context.	

4. Graphs and Functions	Represent or identify a function in a table or graph as having exactly one output for each input		Represent or identify a function in a table or graph as having exactly one output for each input.				Algebraic problem solving with graphs and functions.				
		Interpret unit rate as the slope in a proportional relationship.	Determine the slope of a line from a graph, equation, or table.	Interpret unit rate as the slope in a proportional relationship.	Graph two-variable linear equations	Use slope to identify parallel and perpendicular lines and to solve geometric problems.	Determine the slope of a line from a graph, equation, or table.	Graph two-variable linear equations.	Use slope to identify parallel and perpendicular lines and to solve geometric problems.	Graph two-variable linear equations.	Use slope to identify parallel and perpendicular lines and to solve geometric problems.
	Locate and plot points in the coordinate plane.	Sketch graphs and interpret key features of graphs and tables in terms of quantities.	Write the equation of a line with a given slope through a given point		Write the equation of a line passing through two given distinct points.		Write the equation of a line with a given slope through a given point.				
	Evaluate linear and quadratic functions.	Compare two different proportional relationships, represented in different ways.		Evaluate linear and quadratic functions.	Compare two different linear or quadratic functions, each represented in different ways.	Compare two different proportional relationships, each represented in different ways.	Compare two different linear or quadratic functions, each represented in different ways.			Compare two different linear or quadratic functions, each represented in different ways.	