GED G060N: GED TEST PREPARATION: MATHEMATICAL REASONING

Item	Value
Curriculum Committee Approval Date	11/19/2019
Top Code	493062 - Secondary Education (Grades 9-12) and G.E.D.
Units	0 Total Units
Hours	64 Total Hours (Lecture Hours 64)
Total Outside of Class Hours	0
Course Credit Status	Noncredit (N)
Material Fee	No
Basic Skills	Basic Skills (B)
Repeatable	Yes; Repeat Limit 99
Open Entry/Open Exit	Yes
Grading Policy	P/NP/SP Non-Credit (D)

Course Description

This noncredit course is designed to prepare students for the General Education Development (GED) exam in Mathematics. This course provides instruction in quantitative and algebraic problem solving and skill building in test taking strategies to respond to questions on the GED exam in mathematical reasoning. 55% of the exam covers algebraic concepts and 45% covers quantitative reasoning. Open Entry/Open Exit. NOT DEGREE APPLICABLE. Not Transferable.

Course Level Student Learning Outcome(s)

1. Course Outcomes
2. Graph a linear equation.
3. Solve a system of linear equations using substitution.
4. Solve a polynomial equation (degree one and two).

Course Objectives

- 1. Perform basic operations on integers, fractions, decimals, percents.
- 2. Solve and graph linear equations and systems of linear equations.
- 3. Add, subtract, multiply, divide and factor polynomial and rational expressions.
- 4. Find perimeter, area and volume of geometric figures.
- 5. Compute probabilities for individual and compound events.
- 6. Solve quadratic equations.

Lecture Content

Numbers: Whole Numbers, Integers, Fractions, Decimals Addition Subtraction Multiplication Division Ordering and estimation Exponents and order of operations Prime numbers, factors, multiples Ordering and plotting Algebraic Expressions Evaluating algebraic expressions Writing expressions Translating a phrase to an algebraic expression Solving Linear equations One-step linear equations Two-step linear equations Multi-step equations Solving formulas for a variable Solving proportions Solving equations with similar polygons Applications of equations Linear Inequalities Solving and graphing one-step linear inequalities Solving and graphing two-step linear inequalities Solving and graphing compound linear inequalities Graphing Linear Equations Plotting ordered pairs Finding the distance and midpoint of a line segment Identifying solutions to equations in two variables Creating a table for a linear equation Graphing a line given in slope-intercept form Graphing a line in standard form Graphing a vertical and horizontal line Identifying parallel and perpendicular lines Finding the slope given two points Finding the slope using the graph Writing Equations of Lines Writing an equation given the slope and y-intercept Writing an equation five the slope and a point Writing an equation given two points Writing equations of lines parallel and perpendicular to a given line through a point Systems of 2x2 Linear Equations Identifying solutions to systems of linear equation s Solving a system by graphing Solving a system by substitution Solving a value mixture problem using a system of linear equations Solving a percent mixture problem using a system of linear equations Exponents Product rule Power of a power rule Quotient rule Negative exponents Scientific notations Polynomial Expressions Simplifying polynomials Adding and subtracting polynomials Multiplying polynomials Greatest common factor Factoring polynomials Special patterns Dividing a polynomial by a monomial Solving quadratics by factoring Rational and Radical Expressions Finding the GCF of rational expressions Simplifying and adding rational expressions Complex fractions Solving a rational equation Square roots and irrational numbers Simplifying square roots Higher roots and rational exponents Operations on square roots Pythagorean theorem and distance formula Functions Functions versus relations Vertical line test Graphs of functions Sum, difference, product of functions Composition of functions Standard and vertex form of parabola Lines and Angles Acute, obtuse and right angles Supplementary, complementary, corresponding, alternate interior angles Finding angle measures Polygons Finding angle measures of triangles and quadrilaterals Perimeter and area of a rectangle Area of a parallelogram, triangle, circle and trapezoid Circumference of a circle Surface area and volume of cones, sphere, rectangular prisms and cylinder Data Analysis and Probability Constructing a frequency distribution, line graph, bar graph and pictograph Mean, median, mode and range Counting principles Factorial expressions Permutations and combinations Probabilities involving distinct and not distinct objects Probabilities and their complement Independent and dependent events

Method(s) of Instruction

- Enhanced NC Lect (NC1)
- Online Enhanced NC Lect (NC5)
- Live Online Enhanced NC Lect (NC9)

Instructional Techniques

Whole group lecture Independent practice in an individualized, self-paced setting Collaborative practice Computer assisted instruction Whole class and small group discussion Collaborative activities Practice tests Instructor created assessments

Writing Assignments

Individual practice worksheetsCollaborative practice worksheetsPresentationsPractice testsError analysis

Out-of-class Assignments

None

Demonstration of Critical Thinking

Successfully apply problem solving techniques and strategies to varied problems. Analyze data and make logical decisions based on real world applications.

Required Writing, Problem Solving, Skills Demonstration

Understand and apply the algebraic, graphic, and numerical interpretation of linear equations. Successfully use geometry techniques to find angle measures, perimeter and area of varied polygons.

Eligible Disciplines

Mathematics: Master's degree in mathematics or applied mathematics OR bachelor's degree in either of the above AND master's degree in statistics, physics, or mathematics education OR the equivalent. Master's degree required.

Textbooks Resources

1. Required The Princeton Review. Math Workout for the GED Test, 2nd ed. Princeton Review, 2015 2. Required McGraw-Hill. Mathematical Reasoning for the GED Test, 3rd ed. McGraw-Hill, 2018 3. Required Van Slyke, K. GED Mathematical Reasoning, PAP/PSC ed. Kaplan Publishing, 2015

Other Resources

1. GED geometry from start to finish https://www.oercommons.org/authoring/28337-ged-geometry-from-start-to-finish - (Open Educational Resources) 2. Khan Academy GED Math https://www.khanacademy.org/test-prep - (Open Educational Resources)