

SAN DIEGO COMMUNITY COLLEGE DISTRICT
CONTINUING EDUCATION
COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER

ABED 426

COURSE TITLE

MATH REVIEW FOR THE CBEST

TYPE COURSE

NON-FEE

CATALOG COURSE DESCRIPTION

An applied course in mathematics to sharpen the basic skills of students through a careful and guided study of the fundamental properties of real numbers English and metric measurement, geometry, statistics, tables and graphs and elementary algebra. Throughout the course concepts and computational skills are developed around vocational and consumer applications. This course is especially recommended for students who plan no further course work in mathematics. (FT)

LECTURE/LABORATORY HOURS

6 hours per week
(for 9 weeks)

ADVISORIES

NONE

RECOMMENDED SKILL LEVEL

NONE

INSTITUTIONAL STUDENT LEARNING OUTCOMES

1. Social Responsibility
SDCE students demonstrate interpersonal skills by learning and working cooperatively in a diverse environment.
2. Effective Communication
SDCE students demonstrate effective communication skills.

INSTITUTIONAL STUDENT LEARNING OUTCOMES (CONTINUED)

3. Critical Thinking
SDCE students critically process information, make decisions, and solve problems independently or cooperatively.
4. Personal and Professional Development
SDCE students pursue short term and life-long learning goals, mastering necessary skills and using resource management and self-advocacy skills to cope with changing situations in their lives.

COURSE GOALS

Achievement of the course objectives will enable the students to:

1. Apply the fundamental properties of real numbers.
2. Apply basic math principles to word problems.
3. Prepare for the CBEST.

COURSE OBJECTIVES

Upon successful completion of the course, the student will be able to:

1. Apply the basic skills of whole numbers, fractions, decimals, and percents in problem solving.
2. Find the average, median, mode, and range of a set of rational numbers.
3. Determine the square root of numbers.
4. Write whole numbers in scientific notation.
5. Calculate the perimeter and area of triangles and quadrilaterals.
6. Calculate the circumference and area of a circle.
7. Calculate the surface area and volume of regular space (solid) figures.
8. Analyze and solve problems in measurement using the English and metric units.
9. Translate word problems into equivalent algebraic expressions.
10. Interpret graphs and charts.
11. Solve equations and inequalities in one and two variables.

SECTION II

COURSE CONTENT AND SCOPE

1. Whole Numbers
 - 1.1. Review of whole number operations
 - 1.1.1. Reading and writing whole numbers
 - 1.1.1.1. Naming whole numbers
 - 1.1.1.2. Rounding off
 - 1.1.2. Properties (axioms) of whole numbers
 - 1.2. Operations on whole numbers

COURSE CONTENT AND SCOPE (CONTINUED)

- 1.2.1. Addition of whole numbers
- 1.2.2. Subtraction of whole numbers
- 1.2.3. Multiplication of whole numbers
- 1.2.4. Division of whole numbers
- 1.3. Applications of whole numbers: solving problems
- 2. Common Fractions and Mixed Numbers
 - 2.1. Review of common fractions and mixed numbers
 - 2.1.1. Reading and writing fractions
 - 2.1.1.1. Naming fractions
 - 2.1.1.2. Equivalent fractions – renaming fractions
 - 2.1.1.3. Simplifying fractions
 - 2.1.2. Comparing fractions
 - 2.1.2.1. Ordering fractions
 - 2.1.2.2. Equivalent fractions
 - 2.1.2.3. Inequalities
 - 2.1.3. Properties (axioms) of fractions
 - 2.2. Operations on fractions
 - 2.2.1. Addition of fractions and mixed numbers
 - 2.2.2. Subtraction of fractions and whole numbers
 - 2.2.3. Multiplication of fractions and whole numbers
 - 2.2.4. Division of fractions and mixed numbers
 - 2.3. Application of fractions: solving problems
- 3. Decimal Numbers
 - 3.1. Review of decimal number operations
 - 3.1.1. Reading and writing decimals
 - 3.1.1.1. Naming decimals
 - 3.1.1.2. Rounding off
 - 3.1.2. Comparing decimals
 - 3.1.2.1. Ordering decimals
 - 3.1.2.2. Equivalent decimals
 - 3.1.2.3. Inequalities
 - 3.1.3. Properties (axioms) of decimals
 - 3.2. Operations on decimals
 - 3.2.1. Addition of decimals
 - 3.2.2. Subtraction of decimals
 - 3.2.3. Multiplication of decimals
 - 3.2.4. Division of decimals
 - 3.3. Scientific Notations
 - 3.3.1. Exponential notation
 - 3.3.2. Properties of exponents
 - 3.3.3. Writing decimal numbers in scientific notation
 - 3.3.4. Products and quotients using scientific notation
 - 3.3.5. Significant digits
 - 3.4. Applications of decimals: solving problems
- 4. Percents
 - 4.1. Review of percents

COURSE CONTENT AND SCOPE (CONTINUED)

- 4.1.1. Working with percents
 - 4.1.1.1. Ratio, proportion, and percents
 - 4.1.1.1.1. Rational numbers (fractions) as ratios
 - 4.1.1.1.2. Equivalent ratios – proportions
 - 4.1.1.1.3. Solving problems
 - 4.1.1.1.4. Ratios of a number to 100: a percent
 - 4.1.1.1.5. Fractions, decimals, percents
 - 4.1.1.2. Percents to common fractions
 - 4.1.1.3. Converting decimals to percents
 - 4.1.2. Percent, base, and rate: percentage formulas
- 4.2. Operations on percents
 - 4.2.1. Translating word statements
 - 4.2.1.1. Finding a percent of a number
 - 4.2.1.2. Finding what percent one number is of another
 - 4.2.1.3. Finding a number when a percent of it is known
 - 4.2.2. Percent applications
 - 4.2.2.1. Percent increase
 - 4.2.2.2. Percent decrease
 - 4.2.2.3. Commission
 - 4.2.2.4. Discount
 - 4.2.2.5. Profit based on cost
 - 4.2.2.6. Interest
- 4.3. Applications of percents: solving problems
5. Statistics and Probability
 - 5.1. Average/mean
 - 5.2. Median
 - 5.3. Mode
 - 5.4. Range
 - 5.5. Simple probability theory
 - 5.5.1. Rolling dice
 - 5.5.2. Coin flips
 - 5.5.3. Selection with and without replacement
6. Measurement: English System
 - 6.1. Operations on measures
 - 6.1.1. Length
 - 6.1.2. Area
 - 6.1.3. Volume
 - 6.1.4. Weight
 - 6.1.5. Time
 - 6.1.6. Speed
 - 6.1.7. Temperature
 - 6.2. Conversion between units of measurements
 - 6.3. Applications of English measures: solving problems
7. Measurement: Metric System
 - 7.1. Operations on measures
 - 7.1.1. Length

COURSE CONTENT AND SCOPE (CONTINUED)

- 7.1.2. Area
- 7.1.3. Volume
- 7.1.4. Weight and mass
- 7.1.5. Time
- 7.1.6. Speed
- 7.1.7. Temperature
- 7.2. Conversion between units of measurements
 - 7.2.1. Prefixes
 - 7.2.2. Scientific notation
 - 7.2.3. Simplifying compound units of measurement
- 7.3. Applications of Metric measures: solving problems
- 8. Geometry
 - 8.1. Angles
 - 8.1.1. Naming angles
 - 8.1.2. Kinds of angles
 - 8.1.3. Interior and exterior alternate angles
 - 8.2. X-Y coordinate system
 - 8.3. Plane geometry
 - 8.3.1. Polygons, circles, and space figures
 - 8.3.1.1. Perimeter and area
 - 8.3.1.1.1. Rectangle
 - 8.3.1.1.2. Square
 - 8.3.1.1.3. Parallelogram
 - 8.3.1.1.4. Triangle
 - 8.3.1.1.5. Trapezoid
 - 8.3.1.2. Circle
 - 8.3.1.2.1. Circumference
 - 8.3.1.2.2. Area
 - 8.3.1.2.3. Definition of pi
 - 8.3.2. Similar triangles
 - 8.4. Solid geometry
 - 8.4.1. Naming space figures
 - 8.4.2. Surface area and volume
 - 8.4.2.1. Rectangular solids
 - 8.4.2.2. Cylinders
 - 8.5. Applications of geometry: solving problems
- 9. Charts, Tables, and Graphs
 - 9.1. Charts and tables
 - 9.1.1. Reading charts and tables
 - 9.1.2. Interpreting charts and tables
 - 9.2. Graphs
 - 9.2.1. Types
 - 9.2.1.1. Pictograph
 - 9.2.1.2. Bar
 - 9.2.1.3. Line
 - 9.2.1.4. Circle

COURSE CONTENT AND SCOPE (CONTINUED)

- 9.2.2. Functions
 - 9.2.2.1. Ordered pairs
 - 9.2.2.2. Range and domain
- 9.3. Applications of charts, tables and graphs: solving problems
- 10. Algebra
 - 10.1. The real number system
 - 10.2. Operations in algebra
 - 10.2.1. Properties (axioms) of real numbers
 - 10.2.1.1. Addition and subtraction of real numbers
 - 10.2.1.2. Multiplication and division of real numbers
 - 10.2.2. Translating in algebra
 - 10.2.2.1. Symbols
 - 10.2.2.2. Simple algebraic expressions
 - 10.2.2.3. Formulas
 - 10.2.3. Evaluating in algebra
 - 10.2.3.1. Algebraic expressions
 - 10.2.3.2. Formula
 - 10.2.3.2.1. Equations
 - 10.2.3.2.2. Inequalities
 - 10.2.4. Operations with polynomials
 - 10.2.5. Solving equations in one and two variables
 - 10.2.5.1. Linear equations
 - 10.2.5.2. Inequalities
 - 10.2.5.3. Replacement and transposition
 - 10.2.5.4. Absolute value
 - 10.2.5.5. Evaluating formulas
 - 10.3. Application of algebra: solving problems
 - 10.3.1. Ratio and proportion problems
 - 10.3.2. Percent problems
 - 10.3.3. Integer problems
 - 10.3.4. Investment problems
 - 10.3.5. Discount problems
 - 10.3.6. Distance/motion problems
 - 10.3.7. Work problems
 - 10.3.8. Mixture problems

APPROPRIATE READINGS

NONE

WRITING ASSIGNMENTS

NONE

OUTSIDE ASSIGNMENTS

NONE

APPROPRIATE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING

NONE

EVALUATION

Students will be evaluated on their class participation and performance on assigned practice exercises. Students will also evaluate themselves in terms of pre- and post-tests.

METHOD OF INSTRUCTION

The primary methods of instruction will include lectures, demonstrations, practice exercises and sample tests.

TEXTS AND SUPPLIES

Required test:

Practice Problems and Math Review for the CBEST, Applied Technology Corporation

The instructor will provide a course syllabus and relevant course handouts.

PREPARED BY Glenn Deacon DATE February 27, 1986

REVISED BY Instructional Services, SLOs added DATE March 3, 2017

Instructors must meet all requirements stated in Policy 3100 (Student Rights, Responsibilities and Administrative Due Process), and the Attendance Policy set forth in the Continuing Education Catalog.

REFERENCES:

San Diego Community College District Policy 3100
California Community Colleges, Title 5, Section 55002
Continuing Education Catalog