CENTRAL TEXAS COLLEGE
SYLLABUS FOR DSMA 0491
NCBO FOUNDATIONS OF ALGEBRA

Semester Hours Credit: 4

INSTRUCTOR: ____________________________

OFFICE HOURS: ____________________________

I. INTRODUCTION

NCBO Foundations of Algebra is designed to accelerate a student through Developmental Mathematics I & II sequence in one semester in a classroom/lab environment with the instructor.

This course is designed specifically for those students that can be successful in the lower levels of the mathematics sequence in a faster paced setting but still need the lecture component of the course. This course will develop the student’s skills starting with arithmetic through basic algebra to include graphing and operations of polynomials.

The course includes an in-depth study and application of numeracy and the real number system; algebraic concepts, notation, and reasoning; quantitative relationships; mathematical models; and problem solving. Additional topics include order of operations, problem solving with sales tax, commission, discounts, compound interest, linear equations, weight, mass, capacity, and polynomials. This course will assist the student in developing the critical-thinking and problem-solving skills necessary for other developmental or college-level courses.

This course is required for students who have not achieved a passing score on the TSI Assessment. Successful completion of this course fulfills the prerequisite for the next higher developmental or college-level mathematics course. This course has no prerequisite.

II. LEARNING OUTCOMES

Upon successful completion of this course, NCBO Foundations of Algebra, the student will:

A. Use appropriate symbolic notation and vocabulary to communicate, interpret, and explain mathematical concepts. (F1, F2, F5, F10)

B. Define, represent, and perform operations on real numbers, applying numeric reasoning to investigate and describe quantitative relationships and solve real world problems in a variety of contexts. (F1, F2, F3, F4, F6, F8, F9)
C. Use algebraic reasoning to solve problems that require ratios, rates, percentages, and proportions in a variety of contexts using multiple representations. (F2, F4, F8, F9)

D. Apply algebraic reasoning to manipulate expressions and equations to solve real world problems. (F3, F4, F8, F9)

E. Use graphs, tables, and technology to analyze, interpret, and compare data sets. (F2, F3, F5, F8, F10)

F. Construct and use mathematical models in verbal, algebraic, graphical, and tabular form to solve problems from a variety of contexts and to make predictions and decisions. (F2, F3, F4, F5, F6, F8, F9, F10)

G. Compute basic operations of addition, subtraction, multiplication and division of whole numbers, fractions, decimals and signed numbers. (F1, F3, F4, F5, F8)

H. Demonstrate ability to find length of missing sides of triangle using Pythagorean Theorem and similar triangles. (F1, F3, F4, F5, F8)

I. Analyze and solve problem that pertain to, but not limited to angles, distance, perimeter, area, volume, surface area, and probability. (F1, F3, F4, F5, F8)

J. Compute basic operations on and convert units of measurement. (F1, F3, F4, F5, F8)

K. Solve and graph linear equations and inequalities. (F1, F3, F4, F5, F8, F9, F10, F12)

L. Demonstrate ability to add subtract, multiply, and divide polynomials. (F1, F3, F4, F5, F8, F9, F10, F12)

M. Use electronic and other media, such as the computer and DVD, to reinforce and supplement the learning process. (F1, F2, F3, F6)

N. Demonstrate critical thinking, communication, and empirical and quantitative skills. (F1, F3, F4, F7, F9)

Some learning outcomes are followed by letters and numbers; i.e., C9 or F11. These refer to SCANS foundations skills (F) and workplace competencies (C). View a chart showing these skills at http://www.ctcd.edu/scans. For more on the (Labor) Secretary's Commission on Achieving Necessary Skills, or SCANS, go to the U.S. Department of Labor site at http://wdr.doleta.gov/SCANS/.

III. INSTRUCTIONAL MATERIALS/RESOURCES

To assist in this course, a variety of materials both in and out of the classroom will be required and used. The textbook and materials that you will need to purchase for this semester are listed at the following URL address:

http://www.ctcd.edu/books

***Required: Set of earphones for personal use in lab,***
NOTE: A calculator will be used in this course. The Casio fx-55 Plus is recommended.

IV. COURSE REQUIREMENTS

A. Assignments are given in My Labs (MML) and are due as scheduled by your instructor. The instructor will monitor students’ progress in completing the assignments.

B. Every student is required to complete 16 hours in the Developmental Studies Computer Lab. Students will be given three deadlines throughout the term to monitor progression of the lab hour requirement.

All 16 hours MUST BE COMPLETED by the final deadline. If a student fails to complete all 16 hours by the final deadline, a grade of zero, 0, will be posted for the final examination and the final grade will be calculated.

V. EXAMINATIONS AND ASSIGNMENTS

CHALLENGE EXAMS

Mathematics students may be eligible, during the first week of the semester, to challenge the classes in which they are enrolled. Students must discuss the challenge procedures with their instructors to determine eligibility. If eligible to take the exam, a student will receive a signed challenge exam request form from the instructor. The challenge exam must be taken during the first week of classes.

A. Periodic examinations will be given during the course in order to evaluate a student’s progress. A comprehensive final will be given.

Failure to take the final examination results in a grade of zero, 0, to be posted. Students may not "retake" any exam. No "early" finals, take-home or open-book examinations will be administered. No examination grades will be dropped.

B. If you miss an exam, and have an excused absence, your instructor will arrange a make-up at his/her discretion. Said make-up may involve counting the next exam as a 200 point exam.

If you miss an exam, and do not have an excused absence then a make-up exam will be granted only at the discretion of the instructor. The make-up exam, if granted, will be given by appointment only.

C. If the student is absent from class, it is his or her responsibility to contact his or her classmate/instructor to determine missed instruction. Each student must make appropriate arrangements to acquire assignments, announcements, lecture notes, and other pertinent information missed. Material on each class topic is available on CD and/or on the computer software in the lab. Students should use these resources to catch up on any missed lectures.
D. Class exams will be returned to students within three class periods after the exam is administered. The instructor may require students to use a Bluebook for each examination. Bluebooks are available in the Campus Bookstore.

VI. SEMESTER GRADE COMPUTATIONS

To receive a passing grade of “A,” “B,” or “C” in this course, each student must complete 16 hours of required laboratory, complete all requirements and assignments, and earn a weighted average of 70% or above derived from the periodic/unit examinations, homework, quizzes, attendance and the comprehensive final examination.

Final grades will follow the grade designation for developmental courses below:

- “A” - Weighted average of 90–100%
- “B” - Weighted average of 80–89%
- “C” - Weighted average of 70–79%
- “D” - Weighted average of 60–69%
- “F” – Weighted average below 0–59%
- “W” - Withdrawal from course (initiated by student)

Students may receive their grades through:

The CTC WebAdvisor (Online) System allows students to obtain their grades online. Instructions for using the WebAdvisor (online) Registration/Grades by computer are listed in the schedule bulletin.

Grades will not be posted.

VII. NOTES AND ADDITIONAL INSTRUCTIONS FROM THE INSTRUCTOR

A. Withdrawal from Course: It is the student’s responsibility to officially withdraw from a class if circumstances prevent attendance. Any student who desires to, or must, officially withdraw from a course after the first scheduled class meeting must file an Application for Withdrawal or Application for Refund. The withdrawal form must be signed by the student.

An Application for Withdrawal will be accepted at any time prior to Friday of the 12th week of classes during the 16-week fall and spring semesters. The deadline for sessions of other lengths is as follows:

<table>
<thead>
<tr>
<th>Session Length</th>
<th>Deadline Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 week session</td>
<td>Friday of the 9th week</td>
</tr>
<tr>
<td>10 week session</td>
<td>Friday of the 7th week</td>
</tr>
<tr>
<td>8 week session</td>
<td>Friday of the 6th week</td>
</tr>
<tr>
<td>6 week session</td>
<td>Friday of the 4th week</td>
</tr>
<tr>
<td>5 week session</td>
<td>Friday of the 3rd week</td>
</tr>
</tbody>
</table>

The equivalent date (75% of the semester) will be used for sessions of other lengths. The specific last day to withdraw is published each semester in the schedule bulletin.
Students who officially withdraw will receive a "W" if their academic performance is satisfactory at the time of official withdrawal. Students must file a withdrawal application with the college before they may be considered for withdrawal.

Before withdrawing from any developmental course, the student should seek the advice of Guidance and Counseling so that the student does not initiate an action that would inadvertently have negative repercussions on his/her enrollment or Financial Aid.

B. **Cellular Phones and Pagers:** Cellular phones and pagers must be turned off and put away while the student is in the classroom or laboratory.

C. **American’s With Disabilities Act (ADA):** Disability Support Services provides services to students who have appropriate documentation of a disability. Students requiring accommodations for class are responsible for contacting the Office of Disability Support Services (DSS) located on the central campus. This service is available to all students, regardless of location. Explore the website at [www.ctcd.edu/disability-support](http://www.ctcd.edu/disability-support) for further information. Reasonable accommodations will be given in accordance with the federal and state laws through the DSS office.

D. **Civility:** Individuals are expected to be cognizant of what a constructive educational experience is and respectful of those participating in a learning environment. Failure to do so can result in disciplinary action up to and including expulsion.

E. **Office Hours:** Full-time instructors post their office hours outside their office doors. Part-time instructors may be available by appointment. Please feel free to see your instructor should you find yourself having difficulty with this course.

**VIII. COURSE OUTLINE**

A. **Unit One:** (Chapter One) **The Whole Numbers**

1. **Unit Objectives:** Upon successful completion of this unit the student will be able to:
   a. General tips for success in mathematics.
   b. Find the place value of a digit in a whole number.
   c. Write a whole number in words and in standard form.
   d. Write a whole number in expanded form.
   e. Read tables.
   f. Add whole numbers.
   g. Subtract whole numbers.
   h. Find the perimeter of a polygon.
   i. Solve problems by adding or subtracting whole numbers.
   j. Round whole numbers.
k. Use rounding to estimate sums and differences.
l. Solve problems by estimating.
m. Use the properties of multiplication.
n. Multiply whole numbers.
o. Find the area of a rectangle.
p. Solve problems by multiplying whole numbers.
q. Divide whole numbers.
r. Perform long division.
s. Solve problems that require dividing by whole numbers.
t. Find the average of a list of numbers.
u. Write repeated factors using exponential notation.
v. Evaluate expressions containing exponents.
w. Use the order of operations.
x. Find the area of a square.
y. Evaluate algebraic expressions given replacement values.
z. Identify solutions of equations.
aa. Translate phrases into variable expressions.

Learning Activities:

a. Classroom lecture/discussion (F5, F6, F7, F8)
b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

2. Unit Outline:
   a. Section 1.1 Study Skills Tips for Success in Mathematics
   b. Section 1.2 Place Value, Names for Numbers, and Reading Tables
   c. Section 1.3 Adding and Subtracting Whole Numbers, and Perimeter
   d. Section 1.4 Rounding and Estimating
   e. Section 1.5 Multiplying Whole Numbers and Area
   f. Section 1.6 Dividing Whole Numbers
   g. Section 1.7 Exponents and Order of Operations
   h. Section 1.8 Introduction to Variables, Algebraic Expressions, and Equations
B. **Unit Two:** (Chapter Two) **Integers and Introduction to Solving Equations**

1. **Unit Objectives:** Upon successful completion of this unit the student will be able to:
   a. Represent real-life situations with integers.
   b. Graph integers on a number line.
   c. Compare integers.
   d. Find the absolute value of a number.
   e. Find the opposite of a number.
   f. Read bar graphs containing integers.
   g. Add integers.
   h. Evaluate an algebraic expression by adding.
   i. Solve problems by adding integers.
   j. Subtract integers.
   k. Add and subtract integers.
   l. Evaluate an algebraic expression by subtracting.
   m. Solve problems by subtracting integers.
   n. Multiply integers.
   o. Divide integers.
   p. Evaluate an algebraic expression by multiplying or dividing.
   q. Solve problems by multiplying or dividing integers.
   r. Simplify expressions by using the order of operations.
   s. Evaluate an algebraic expression.
   t. Find the average of a list of numbers.
   u. Identify solutions of equations.
   v. Use the addition property of equality to solve equations.
   w. Use the multiplication property of equality to solve equations.

2. **Learning Activities:**
   a. Classroom lecture/discussion (F5, F6, F7, F8)
   b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
   c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. **Unit Outline:**
   a. Section 2.1 Introduction to Integers
   b. Section 2.2 Adding Integers
   c. Section 2.3 Subtracting Integers
   d. Section 2.4 Multiplying and Dividing Integers
C. Unit Three: (Chapter Three) **Solving Equations and Problem Solving**

1. **Unit Objectives:** Upon successful completion of this unit the student will be able to:
   a. Use properties of numbers to combine like terms.
   b. Use properties of numbers to multiply expressions.
   c. Simplify expressions by multiplying and then combining like terms.
   d. Find the perimeter and area of figures.
   e. Use the addition property or the multiplication property to solve equations.
   f. Use both the properties to solve equations.
   g. Translate word phrases into mathematical expressions.
   h. Solve linear equations using the addition and multiplication properties.
   i. Solve linear equations containing parentheses.
   j. Write numerical sentences as equations.
   k. Write sentences as equations.
   l. Use problem-solving steps to solve problems.

2. **Learning Activities:**
   a. Classroom lecture/discussion (F5, F6, F7, F8)
   b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
   c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. **Unit Outline:**
   a. Section 3.1 Simplifying Algebraic Expressions
   b. Section 3.2 Solving Equations: Review of the Addition and Multiplication Properties
   c. Section 3.3 Solving Linear Equations in One Variable
   d. Section 3.4 Linear Equations in One Variable and Problem Solving

D. Unit Four: (Chapter Four) **Fractions and Mixed Numbers**

1. **Unit Objectives:** Upon successful completion of this unit the student will be able to:
   a. Identify the numerator and the denominator of a fraction.
   b. Write a fraction to represent parts of figures or real-life data.
a. Graph fractions on a number line.
b. Review division properties of 0 and 1.
c. Write mixed numbers as improper fractions.
d. Write improper fractions as mixed numbers or whole numbers.
e. Write a number as a product of prime numbers.
f. Write a fraction in simplest form.
g. Determine whether two fractions are equivalent.
h. Solve problems by writing fractions in simplest form.
i. Multiply fractions.
j. Evaluate exponential expressions with fractional bases.
k. Divide fractions.
l. Multiply and divide given fractional replacement values.
m. Solve applications that require multiplication of fractions.
n. Add or subtract like fractions.
o. Add and subtract given fractional replacement values.
p. Solve problems by adding or subtracting like fractions.
q. Find the least common denominator of a list of fractions.
r. Write equivalent fractions.
s. Add and subtract unlike fractions.
t. Write fractions in order.
u. Evaluate expressions given fractional replacement values.
w. Add or subtract unlike fractions.
x. Solve problems by adding or subtracting unlike fractions.
y. Simplify complex fractions.
z. Review the order of operations.
aa. Evaluate expressions given replacement values.
bb. Graph positive and negative fractions and mixed numbers.
c. Multiply or divide mixed numbers or whole numbers.
d. Add or subtract mixed numbers.
e. Solve problems containing mixed numbers.
f. Perform operations on negative mixed numbers.
g. Solve equations containing fractions.
h. Solve equations by multiplying by the LCD.
i. Review adding and subtracting fractions.

2. **Learning Activities:**
   a. Classroom lecture/discussion (F5, F6, F7, F8)
   b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
   c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)
3. **Unit Outline:**
   a. Section 4.1 Introduction to Fractions and Mixed Numbers
   b. Section 4.2 Factors and Simplest Form
   c. Section 4.3 Multiplying and Dividing Fractions
   d. Section 4.4 Adding and Subtracting Like Fractions, Least Common Denominator, and Equivalent Fractions
   e. Section 4.5 Adding and Subtracting Unlike Fractions
   f. Section 4.6 Complex Fractions and Review of Order of Operations
   g. Section 4.7 Operations on Mixed Numbers
   h. Section 4.8 Solving Equations Containing Fractions

E. **Unit Five: (Chapter Five) Decimals**
   1. **Unit Objectives:** Upon successful completion of this unit the student will be able to:
      a. Know the meaning of place value for decimal number, and write decimals in words.
      b. Write decimals in standard form.
      c. Write decimals as fractions.
      d. Compare decimals.
      e. Round decimals to a given place value.
      f. Add or subtract decimals.
      g. Estimate when adding or subtracting decimals.
      h. Evaluate expressions with decimal replacement values.
      i. Simplify expressions containing decimals.
      j. Solve problems that involve adding or subtracting decimals.
      k. Multiply decimals.
      l. Estimate when multiplying decimals.
      m. Multiply decimals by powers of 10.
      n. Evaluate expressions with decimal replacement values.
      o. Find the circumference of a circle.
      p. Solve problems by multiplying decimals.
      q. Divide decimals.
      r. Estimate when dividing decimals.
      s. Divide decimals by powers of 10.
      t. Evaluate expressions with decimal replacement values.
      u. Solve problems by dividing decimals.
      v. Write fractions as decimals.
      w. Compare fractions and decimals.
      x. Simplify expressions containing decimals and fractions using order of operations.
      y. Solve area problems containing fractions and decimals.
z. Evaluate expressions given decimal replacement values.
aa. Solve equations containing decimals.
bb. Find the mean of a list of numbers.
cb. Find the median of a list of numbers.
dd. Find the mode of a list of numbers.

2. **Learning Activities:**
a. Classroom lecture/discussion (F5, F6, F7, F8)
b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. **Unit Outline:**
a. Section 5.1 Introduction to Decimals
b. Section 5.2 Adding and Subtracting Decimals
c. Section 5.3 Multiplying Decimals and Circumference of a Circle
d. Section 5.4 Dividing Decimals
e. Section 5.5 Fractions, Decimals and Order of Operations
f. Section 5.6 Solving Equations Containing Decimals
g. Section 5.7 Decimal Applications: Mean, Median, and Mode

F. **Unit Six: (Chapter Six) Ratio, Proportion, and Percent**
1. **Unit Objectives:** Upon successful completion of this unit the student will be able to: 
a. Write ratios as fractions.
b. Solve Proportions
c. Solving Problems Modeled by Proportions
d. Understand Percent
e. Write Percents as Decimals or Fractions
f. Write Decimals or Fractions as Percents
g. Applications with Percents, Decimals, and Fractions
h. Write Percent Problems as Equations
i. Write Percent Problems as Proportions
j. Solve Percent Problems
k. Solve Applications Involving Percent
l. Find Percent Increase and Percent Decrease
m. Calculate Sales Tax and Total Price
n. Calculate Commission
2. Learning Activities:
   a. Classroom lecture/discussion (F5, F6, F7, F8)
   b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
   c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. Unit Outline:
   a. Section 6.1 Ratios and Proportion
   b. Section 6.2 Percents, Decimals, and Fractions
   c. Section 6.3 Solving Percent Problems with Equations
   d. Section 6.4 Solving Percent Problems with Proportions
   e. Section 6.5 Applications of Percent
   f. Section 6.6 Percent and Problem Solving: Sales Tax, Commission, and Discount.
   g. Section 6.7 Percent and Problem Solving: Interest

G. Unit Seven: (Chapter Seven) Graphs and Triangle Applications
1. Unit Objectives: Upon successful completion of this unit the student will be able to:
   a. Reading Pictographs
   b. Read and Construct Bar Graphs
   c. Read and Construct Histograms
   d. Read Line Graphs
   e. Read Circle Graphs
   f. Draw Circle Graphs
   g. Find the Square Root of a Number
   h. Approximate Square Roots
   i. Use the Pythagorean Theorem.
   j. Determine Whether Two Triangles are Congruent
   k. Find the Ratio of Corresponding Side in Similar Triangles
   l. Find the Unknown Lengths of Sides in Similar Triangles
   m. Use a Tree Diagram to Count Outcomes
   n. Find the Probability of an Event
2. **Learning Activities:**
   a. Classroom lecture/discussion (F5, F6, F7, F8)
   b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
   c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. **Unit Outline:**
   a. Section 7.1 Reading Pictographs, Bar Graphs, Histograms and Line Graphs.
   b. Section 7.2 Reading and Drawing Circle Graphs
   c. Section 7.3 Square Roots and Pythagorean Theorem
   d. Section 7.4 Congruent and Similar Triangles
   e. Section 7.5 Counting and Introduction to Probability.

H. **Unit Eight: (Chapter Eight) Geometry and Measurement**

1. **Unit Objectives:** Upon successful completion of this unit the student will be able to do the following:
   a. Identify Lines, Line Segments, Rays, and Angles.
   b. Classify Angles as Acute, Right, Obtuse, or Straight
   c. Identify Complementary and Supplementary Angles
   d. Find Measures of Angles.
   e. Use Formulas to Find Perimeters.
   f. Use Formulas to Find Circumferences
   g. Find the Area of Plane Regions
   h. Find the Volume and Surface Area of Solids
   i. Define U.S. Units of Length and Convert from One Unit to Another.
   j. Use Mixed Units of Length
   k. Perform Arithmetic Operations on U.S. Units of Length
   l. Define Metric Units of Length and Convert from One Unit to Another
   m. Perform Arithmetic Operations on Metric Units of Length
   n. Define U.S. Units of Weight and Convert from One Unit to Another.
   o. Perform Arithmetic Operations on U.S. Units of Weight
   p. Define Metric Units of Mass and Convert from One Unit to Another
   q. Perform Arithmetic Operations on Metric Units of Mass
r. Define U.S. Units of Capacity and Convert from One Unit to Another.
s. Perform Arithmetic Operations on U.S. Units of Capacity
t. Define Metric Units of Capacity and Convert from One Unit to Another
u. Perform Arithmetic Operations on Metric Units of Capacity
w. Convert Temperatures from Degrees Celsius to Degrees Fahrenheit
x. Convert Temperature from Degrees Fahrenheit to Degrees Celsius.

2. Learning Activities:
   a. Classroom lecture/discussion (F5, F6, F7, F8)
   b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
   c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. Unit Outline:
   a. Section 8.1 Line and Angles
   b. Section 8.2 Perimeter
   c. Section 8.3 Area, Volume, and Surface Area
   d. Section 8.4 Linear Measurements
   e. Section 8.5 Weight and Mass
   f. Section 8.6 Capacity
   g. Section 8.7 Temperature and Conversions between the U.S. and Metric Systems

I. Unit Nine: (Chapter Nine)
1. Unit Objectives: Upon successful completion of this unit the student will be able to do the following:
   a. Define the Meaning of the Symbols =, ≠, <, >, ≤, and ≥
   b. Translate Sentences into Mathematical Statements
   c. Identify Integers, Rational Numbers, Irrational Numbers, and Real Numbers
   d. Use the Commutative and Associative Properties.
   e. Use the Distributive Property
   f. Use the Identity and Inverse Properties
   g. Apply the General Strategy for Solving Linear Equations
   h. Solve Equations Containing Fractions and Decimals.
   i. Recognize Identities and Equations with No Solution
   j. Solve Problems Involving Direct Translations
k. Solve Problems Involving Relationships Among Unknown Quantities.
l. Solve Problems Involving Consecutive Integers.
m. Use Formulas to Solve Problems
n. Solve a Formula or Equation for One of Its Variables
o. Define Linear Inequality in One Variable, Graph Solution Sets on a Number Line, and Use Interval Notation
p. Use the Addition Property of Inequality to Solve Inequalities
q. Use the Multiplication Property of Inequality to Solve Inequalities
r. Use Both Properties to Solve Inequalities
s. Solve Problems Modeled by Inequalities

2. Learning Activities:
a. Classroom lecture/discussion (F5, F6, F7, F8)
b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. Unit Outline:
a. Section 9.1 Symbols and Sets of Numbers
b. Section 9.2 Properties of Real Numbers
c. Section 9.3 Further Solving Linear Equations
d. Section 9.4 Further Problem Solving
e. Section 9.5 Formulas and Problem Solving
f. Section 9.6 Linear Inequalities and Problem Solving

J. Unit Ten: (Chapter Ten) Graphing
1. Unit Objectives: Upon successful completion of this unit the student will be able to do the following:
a. Read bar and line graphs
b. Define the rectangular coordinate system and plot ordered pairs of numbers
c. Graph paired data to create a scatter diagram
d. Determine whether an ordered pair is a solution of an equation in two variables
e. Find the missing coordinate of an ordered pair solution, given one coordinate of the pair
f. Identify linear equations
g. Graph a linear equation by finding and plotting ordered pair solutions
h. Identify intercepts of a graph
i. Graph a linear equation by finding and plotting intercepts
j. Identify and graph vertical and horizontal lines
k. Find the slope of a line given two points of the line
l. Find the slope of a line given its equation
m. Find the slopes of horizontal and vertical lines
n. Compare the slopes of parallel and perpendicular lines
o. Interpret slope as a rate change
p. Use the slope-intercept form to graph a linear equation
q. Use the slope-intercept form to write an equation of a line
r. Find equations of vertical and horizontal lines
s. Identify Relations, Domains, and Ranges.
t. Identify Functions
u. Use the Vertical Line Test
v. Use Function Notation

2. Learning Activities:
a. Classroom lecture/discussion (F5, F6, F7, F8)
b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. Unit Outline:
a. Section 10.1 Reading Graphs and the Rectangular Coordinate System
b. Section 10.2 Graphing Linear Equations
c. Section 10.3 Intercepts
d. Section 10.4 Slope and Rate of Change
e. Section 10.5 Equations of Lines
f. Section 10.6 Functions

K. Unit Eleven: (Chapter Twelve) Exponents and Polynomials
1. Unit Objectives: Upon successful completion of this unit the student will be able to do the following:
   a. Evaluate exponential expressions
   b. Use the product rule for exponents
   c. Use the power rule for exponents
d. Use the power rules for products and quotients

e. Use the quotient rule for exponents, and define a number raised to the 0 power

f. Decide which rule(s) to use to simplify an expression

g. Define polynomial, monomial, binomial, trinomial, and degree

h. Define polynomial functions

i. Simplify a polynomial by combining like terms

j. Add and subtract polynomials

k. Multiply monomials

l. Use the distributive property to multiply polynomials

m. Multiply polynomials vertically

n. Multiply two binomials using the FOIL method

o. Square a binomial

p. Multiply the sum and difference of two terms

q. Use special products to multiply binomials

r. Simplify expressions containing negative exponents

s. Use all the rules and definitions for exponents to simplify exponential expressions

t. Write numbers in scientific notation

u. Convert numbers from scientific notation to standard form

v. Perform operations on numbers written in scientific notation

2. **Learning Activities:**

   a. Classroom lecture/discussion (F5, F6, F7, F8)
   
   b. Reading/homework assignments (F1, F2, F7, F8, F9, F10, F11, F12)
   
   c. Computer Laboratory/Computer Tutor (F2, F7, F8, F9, F10, F11, F12)

3. **Unit Outline:**

   a. Section 12.1 Exponents

   b. Section 12.2 Adding and Subtracting Polynomials

   c. Section 12.3 Multiplying Polynomials

   d. Section 12.4 Special Products

   e. Section 12.5 Negative Exponents and Scientific Notation