Course Title: PRE-ALGEBRA B

Course No. 3262 **Grade level**: 7-12

Text and Resources:
A. *California Algebra Readiness; Prentice Hall*

Course Content: Key Content Standards and Course Objectives

The following course objectives are based on the Grade 7 Mathematical standards and many of the CAHSEE mathematical strands:

1. **Number Sense:**
1.2 Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) and take positive rational numbers to whole-number powers. 1.3 Convert fractions to decimals and percents and use these representations in estimations, computations, and applications. 1.5 Know that every rational number is either a terminating or repeating decimal and be able to convert terminating decimals into reduced fractions. 2.1 Understand negative whole-number exponents. Multiply and divide expressions involving exponents with a common base.

2. **Algebra and Functions:**
1.1 Use variables and appropriate operations to write an expression, an equation, an inequality, or a system of equations or inequalities that represents a verbal description (e.g., three less than a number, half as large as area A). 1.3 Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse, distributive, associative, commutative) and justify the process used. 2.1 Interpret positive whole-number powers as repeated multiplication and negative whole-number powers as repeated division or multiplication by the multiplicative inverse. Simplify and evaluate expressions that include exponents. 3.3 Graph linear functions, noting that the vertical change (change in *y*-value) per unit of horizontal change (change in *x*-value) is always the same and know that the ratio ("rise over run") is called the slope of a graph. 3.4 Plot the values of quantities whose ratios are always the same (e.g., cost to the number of an item, feet to inches, circumference to diameter of a circle). Fit a line to the plot and understand that the slope of the line equals the quantities. 4.1 Solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution or solutions in the context from which they arose, and verify the reasonableness of the results. 4.2 Solve multistep problems involving rate, average speed, distance, and time or a direct variation.

3. **Measurement and Geometry**
1.3 Use measures expressed as rates (e.g., speed, density) and measures expressed as products (e.g., person-days) to solve problems; check the units of the solutions; and use dimensional analysis to check the reasonableness of the answer. 3.3 Know and understand the Pythagorean theorem and its converse and use it to find the length of the missing side of a right triangle and the lengths of other line segments and, in some situations, empirically verify the Pythagorean theorem by direct measurement.

4. **Mathematical Reasoning:**
1.0 Students make decisions about how to approach problems.
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns. 1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed. 1.3 Determine when and how to break a problem into simpler parts.

Course Description

Course Value: *One Semester

Credit Value: 1 – 5 credits

This Pre-Algebra course will help students develop the skills necessary to manipulate numbers, solve equations and understand the general principles at work. Students will compute interest through percentages, graph linear function, compare rational numbers with scientific notation, and convert fractional numbers between fractions, decimals, and percents. Practical application through the incorporation of word problems is required in this course. This course includes many of the mathematical concepts that are found in the California High School Exit Exam.

*Open entry/open exit

2.0 Students use strategies, skills, and concepts in finding solutions: 2.1 Use estimation to verify the reasonableness of calculated results. 2.2 Apply strategies and results from simpler problems to more complex problems. 2.3 Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques. 2.4 Make and test conjectures by using both inductive and deductive reasoning. 2.5 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning. 2.6 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work. 2.7 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy. 2.8 Make precise calculations and check the validity of the results from the context of the problem. **3.0 Students determine a solution is complete and move beyond a particular problem by generalizing to other situations:** 3.1 Evaluate the reasonableness of the solution in the context of the original situation. 3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems. 3.3 Develop generalizations of the results obtained and the strategies used and apply them to new problem situations. 5. **Algebra 1** **2.0** Students understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and raising to a fractional power. They understand and use the rules of exponents. **4.0** Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$. **5.0** Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.	
Methods of Study	**Evaluation of Performance Standards**
1. Students will complete all activities assigned. 2. Students will participate in discussion with other class members and/or teacher.	1. Students will complete all assignments with a minimum of 70% accuracy. 2. The supervising teacher will be satisfied with the quality of the student's work. 3. The student must receive a minimum score of 70% on a teacher assigned final evaluation.

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Course Outline 3262

I. Textbook Assignment

Prentice Hall CA Algebra Readiness, Part 2 (5.0 credits)

MUST SHOW ALL WORK OR REDO – Do all problems listed unless noted to do even only

- Complete Chapters 6 -10
  - "Check your Readiness" (beginning of every chapter)
  - Standards Practice – Section A – Practice by Example (even only)
  - Section B – Apply your Skills (even only)
  - Multiple Choice Practice & Mixed Review
  - Taking Test Strategies & Multiple Choice Practice
  - Chapter Reviews – Vocabulary Review & Skills and Concepts
  - Chapter Test (even only)
  - Standards Mastery

II. Extension Activity Options: - (Complete any 3 of 5)

1. Complete one **Activity Lab** from Chapters 6 – 10.
2. Complete one **Challenge Question** (Section C in each Chapter)
3. Use a **Flow Map** to demonstrate the steps involved in using the Pythagorean Theorem.
4. Go to PearsonSuccess.net and compete vs. the computer in **Quiz Game – must show**
   70% or above mastery Chapters 6 – 10.
5. **Complete a Printable** page from online resources at PHschools.com or **Math**
   Companion – Chapters 6 – 10. (page to be determined by teacher & student in area
   of concern – or to show mastery)

III. Evaluation

- Unit and/or final test.
- All textbook work must meet the 70% accuracy level for a "C" grade.