

**MT. DIABLO UNIFIED SCHOOL DISTRICT  
COURSE OF STUDY  
DRAFT**

<b>COURSE TITLE:</b>	<b>Introduction to Algebra I</b>
<b>COURSE NUMBER:</b>	<b>1300</b>
<b>CALPADS NUMBER:</b>	<b>2428</b>
<b>CST:</b>	<b>General Math</b>
<b>DEPARTMENT:</b>	<b>High School Mathematics</b>
<b>NCLB CREDENTIAL REQUIREMENT:</b>	<b>Math Credential with Subject Matter Proficiency</b>
<b>LENGTH OF COURSE:</b>	<b>One Year</b>
<b>CREDITS PER SEMESTER:</b>	<b>5</b>
<b>GRADE LEVEL(S):</b>	<b>9-10</b>
<b>REQUIRED OR ELECTIVE:</b>	<b>This course fulfills one year of the high school mathematics requirement. This course does not fulfill the Algebra I graduation requirement.</b>
<b>PREREQUISITES:</b>	<b>None</b>

**BOARD OF EDUCATION ADOPTION:**

**COURSE DESCRIPTION:**

This course introduces fifteen of the twenty-five California State Mathematics Standards for Algebra I focusing on linear algebra. Emphasis is on writing, solving, and graphing linear equations. The ability to communicate mathematical reasoning and understanding will be incorporated in all the topics. In addition, algebraic skills and concepts are developed and used in a wide variety of problem solving situations. The course builds the foundation for success in Algebra I.

**COURSE OUTLINE:**

**1. MAJOR GOALS**

- 1.1 To develop the ability to reason logically and think symbolically
- 1.2 To develop skills for communicating mathematically
- 1.3 To build mathematical models, formulate and solve problems
- 1.4 To improve the skills necessary to be successful in various careers

**2. PERFORMANCE OBJECTIVES:**

(numbers in parentheses refer to the appropriate California State standards)

2.1 Algebra I

- 2.1.1 Identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable (1.0)
- 2.1.2 Use the properties of numbers to demonstrate whether assertions are true or false. (1.1)
- 2.1.3 Understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and raising to a fractional power.

- Understand and use the rules of exponents. (2.0)
- 2.1.4 Solve equations and inequalities involving absolute values (3.0)
- 2.1.5 Simplify expressions (4.0)
- 2.1.6 Solve multi-step problems (5.0)
- 2.1.7 Graph a linear equation, and compute the x and y intercept; sketch the region defined by linear inequality (6.0)
- 2.1.8 Verify that a point lies on a line given an equation of the line. Derive linear equations using the point-slope formula (7.0)
- 2.1.9 Find the equation of a line perpendicular to a given line that passes through a given point (8.0)
- 2.1.10 Solve a system of two linear equations in two variables; solve a system of two linear inequalities and sketch the solution set (9.0)
- 2.1.11 Add, subtract, multiply and divide monomials and polynomials (10.0)
- 2.1.12 Apply algebraic techniques to rate problems (15.0)
- 2.1.13 Understand the concepts of linear relations and linear functions (16.0)
- 2.1.14 Determine the domain of independent variables, and range of dependent variables defined by a linear graph, a set of ordered pairs, or symbolic expression (17.0)
- 2.1.15 Determine whether a relation is a linear function (18.0)
- 2.1.16 Explain the difference between inductive and deductive reasoning; identify and provide examples of each. (24.2)
- 2.1.17 Identify the hypothesis and conclusion in logical deduction. (24.2)
- 2.1.18 Use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute an assertion. (24.3)

### 3. CONTENT OUTLINE:

(numbers in parentheses refers to appropriate performance objectives)

#### 3.1 Algebra I

- 3.1.1 Properties of numbers ( 2.1.1-2.1.2)
- 3.1.2 Exponents, reciprocals and working with roots (2.1.3)
- 3.1.3 Equation and inequality solving (2.1.2, 2.1.4-2.1.6)
- 3.1.4 Graph of linear equations and linear inequalities (2.1.7)
- 3.1.5 Linear equations (2.1.8-2.1.9)
- 3.1.6 Rate problems (2.1.12)
- 3.1.7 Relations and functions (2.1.15-2.1.17)
- 3.1.8 Career integrated linear functions (2.1.13)
- 3.1.9 Logical reasoning and justification (2.1.15-2.1.17)

### 4. TIME ESTIMATES:

- 4.1 Instructional sequences vary in length from a few days to several weeks.

### 5. INSTRUCTIONAL MATERIALS:

- 5.1 District adopted textbooks
- 5.2 Supplementary and teacher-created materials that may include a career focus
- 5.3 Technology materials

6. **EVALUATION OF STUDENT PROGRESS:**

Student communicates mathematically and demonstrates content knowledge in a variety of ways that lead to mathematical competence in their chosen careers.

- 6.1 Teacher observation
- 6.2 Written assignments and projects
- 6.3 Quizzes and tests
- 6.4 Rubrics

**Committee Members:**

Frank Bruketta	CVHS
Danielle Dell	CVHS
Susan Seeley	CVHS
Bodhi Young	CVHS
Suzette Blanke	CPHS
Robert Lovelace	CPHS
Angel Niedzielski	CPHS
Norma Meyerkorth	CHS
Brianne Whiteside	CHS
Kathleen Magana	MDHS
Steve Sankey	MDHS
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Ellen Dill	NHS
Rianne Pfaltzgraff	NHS
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Mary Ditkof	YVHS
Kelly Donlon	YVHS
John Ghiozzi	YVHS
Sharon Simone	RMS
Sandy Bruketta	Curriculum Specialist (Curriculum & Instruction)