



El Camino College
COURSE OUTLINE OF RECORD – Official

Course Acronym:	AHSD
Course Number:	510
Descriptive Title:	High School Math Fundamentals
Division:	Adult High School Diploma
Department:	Adult High School Diploma
Course Disciplines:	Adult High School Diploma
Catalog Description:	This noncredit high school level course helps students master basic arithmetic skills and operations. Topics include integers, fractions, decimals, and percentages. Students learn how to interpret and solve word problems. Successful completion of this course contributes to progress toward a high school diploma or equivalent. From 1-10 high school credits can be earned in 15-hour modules. Note: This course is open entry/open exit.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	.83 to 8.33
Hours Laboratory (per week):	0
Outside Study Hours:	1.66 to 16.66
Total Course Hours:	15 to 150
Course Units:	0
Grading Method:	Pass/No Pass/SP
Credit Status:	Noncredit
Transfer CSU:	No
Effective Date:	
Transfer UC:	No
Effective Date:	
General Education: ECC	
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	
Term:	

Other:	
Cal-GETC:	
Term:	
Other:	
Student Learning Outcomes:	Upon completion of the course, students will be able to: 1. do basic math operations in addition, subtraction, multiplication, and division with integers. 2. compare fractions, decimals, and percents to convert among these types of expressions. 3. create strategies to answer word problems with appropriate arithmetic operations.
Course Objectives:	1. Practice the rules and applications of basic arithmetic calculations applied to integers, including rounding, comparing, and estimating. 2. Explain appropriate environments in which to use each math operation and practice their application. 3. Multiply and divide integers by powers of 10. 4. Explain number systems and place value by expressing counting numbers using numerals in selected historical and contemporary number systems (e.g., binary, hexadecimal, Babylonian, Mayan). 5. Design number systems with other bases. 6. Work with prime and composite numbers and identify the prime factorization of integers up to 100. 7. Perform the four basic arithmetic operations on fractions, decimals, and percents. 8. Write positive integers in prime factored form and use this form to find the GCF and LCM of a set of positive integers. 9. Convert between improper fractions and mixed numbers. 10. Reduce fractions to lowest terms. 11. Convert quantities among fractions, decimals, and percents. 12. Use manipulatives to demonstrate place value in decimals. 13. List English vocabulary words which signal specific mathematical operations. 14. Isolate the question being asked in a word problem and identify the relevant information being given. 15. Distinguish among categories of word problems (e.g., area, distance, work) and develop specific strategies and math operations for solving them. 16. Calculate solutions in word problems.

Major Topics:	I. Addition and subtraction of integers (lecture) A. Memorization of addition facts to 12+12 B. Lining up numbers when they have differing numbers of digits C. English words which indicate addition or subtraction D. Understand place value in the decimal system II. Multiplication of integers (lecture) A. Memorization of multiplication facts to 12x12 B. Procedure for multiplication of multi-digit numbers C. Multiplication by powers of 10 D. English words which indicate multiplication III. Division of integers (lecture) A. Short division B. Long division C. Division with remainders D. English words which indicate division IV. Number types (lecture) A. Whole numbers, integers, rational numbers B. Significance of 0 and different base systems C. Prime and composite numbers; factoring V. Fractions (lecture) A. Simplify and expand fractions B. Add and subtract fractions with same denominator C. Add and subtract fractions with different denominators; find lowest common denominator (LCD) D. Multiply and divide fractions; cancel factors E. Convert between mixed numbers and improper fractions F. Convert complex fractions to simple fractions VI. Decimals (lecture) A. Understand decimals as fractions and understand place values in decimals B. Add and subtract decimals by lining up decimal point
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	C. Multiply decimals D. Divide decimals E. Multiply and divide decimals by powers of 10 VII. Percents (lecture) A. Understand meaning of percent B. Convert among fractions, decimals and percents C. Know fraction-decimal-percent equivalents D. Compute three categories of percent problems 1. Calculate a specific percent of a known number 2. Calculate the percent of a known number that another number is 3. Calculate the percent one number is of another number VIII. Word problems with fractions, decimals, and percents (lecture) IX. Estimation and rounding (lecture)
Total Lecture Hours:	15 to 150
Total Laboratory Hours:	0
Total Hours:	15 to 150
A.1. Primary Methods of Evaluation (Part 1 - CCN courses only):	
A.2. Primary Method of Evaluation (Part 2 - all courses; choose one):	2) Problem solving demonstrations (computational or non-computational)
Typical Assignment Using Primary Method of Evaluation:	Complete Designs 19 and 23 from 'Compute a Design Decimals' to practice multiplication of integers by decimals and decimals by decimals.
Critical Thinking Assignment 1:	Work with a partner to develop a number system with a base (base to be assigned differently for each group) different from 10. Write a one- or two-page explanation of your number system and include sample exercises in addition, subtraction, multiplication, and division. On a separate page, write at least four problems for each of all four operations, and on an additional page re-write all those problems with answers. Give an oral presentation on its number system and then the class will attempt the exercises you have written.
Critical Thinking Assignment 2:	Research measurement systems online. Work together in a group of three students to research one of the topics below and prepare and present your findings to the whole class. Grades will be determined according to the rubric for both the written paper and the oral presentation and all members of your group will be assigned the same grade. Papers should be a maximum of two pages and oral presentations should be approximately five minutes. Handouts should be provided. Topics include: a. prefixes used in the metric system

	b. liquid measures in the English system and how they relate to each other c. liquid measures in the metric system and how they relate to each other d. linear and area measures in the English system and how they relate to each other e. linear and area measures in the metric system and how they relate to each other f. weight and volume measures in the English system and how they relate to each other g. weight and volume measures in the metric system and how they relate to each other
Other Evaluation Methods:	Homework Problems, Multiple Choice, Objective Exam, Quizzes, Written Homework
Instructional Methods:	Demonstration, Discussion, Group Activities, Lecture, Multimedia presentations
If other:	
Work Outside of Class:	Answer questions, Problem solving activity, Required reading, Skill practice, Study
If Other:	
Up-To-Date Representative Texts:	Baratto, Stefan et al. <i>Basic Mathematical Skills with Geometry</i> , 9th Edition. McGraw Hill, 2013. (Discipline Standard)
Alternative Texts:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite:	
Category:	
Requisite course(s): List both prerequisites and corequisites in this box.	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
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Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Matthew Kline
Date:	03/06/2024
Original Board Approval Date:	01/13/2025
Last Reviewed and/or Revised by:	Matt Kline
Date:	03/11/2026
Last Board Approval Date:	05/20/2026
Effective Term:	FA 2026