SWEETWATER UNION HIGH SCHOOL DISTRICT

DIVISION OF ADULT EDUCATION

High School Subjects

		9027
VI	Algebra 1, 2	9028
Level	2015	Code

DURATION: Approximately 60 hours for each course, extended if necessary until all required work is satisfactorily completed

GRADE LEVEL: 9-12

PREREQUISITES: Successful completion of General Math, Advanced or its equivalent

CREDIT: One (1) unit of high school math credit may be earned for each semester course.

PROGRAM DESCRIPTION:
Students will develop an understanding of the symbolic language of mathematics and the sciences. In addition, algebraic skills and concepts are developed and used in a wide variety of problem-solving situations.

STUDENT LEARNER OUTCOMES:

- Students will establish personal, academic and/or workforce goals and demonstrate progress toward them
- Students will solve problems
- Students will communicate clearly and collaborate with others
- Students will use resources, including technology, to research, organize and communicate information

GOALS:
Through the principles and practice presented in this course, students will

1.0 Solve linear equations and inequalities in one-variable with applications and absolute value equations and inequalities with applications.

2.0 Understand functions and relations.

3.0 Write, graph, and analyze linear equations and inequalities in two variables.

4.0 Solve and interpret systems of linear equations and inequalities.

5.0 Understand exponents and roots.

6.0 Explore polynomial expressions and functions and rational expressions and functions.

OBJECTIVES:
Students who successfully complete this course will be able to:

1.0 With respect to solving linear equations and inequalities in one-variable with applications and absolute value equations and inequalities with applications,

1.1 Solve equations and inequalities involving absolute – values (CS ALG. 3.0).

1.2 Solve multi-step problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step (CS ALG 5.0).

1.3 Solve multi-step linear inequalities, including inequalities with variables on both sides, and graph solutions on a number line.

1.4 Graph a linear equation and compute the x- and y- intercepts (e.g., graph $2x + 6y = 4$) (CS ALG 6.0)

2.0 With respect to understanding functions and relations,

2.1 Determine whether a given relation defines a function (CS ALG 16.0).

2.2 Determine the domain of independent variables and the range of dependent variables defined by a graph, a set of ordered pairs, or a symbolic expression (CS ALG 17.0).

2.3 Determine whether a relation defined by a graph, a set of ordered pairs, or a symbolic expression is a function and justify the conclusion (CS ALG 18.0).

3.0 With respect to writing, graphing, and analyzing linear equations and inequalities in two variables,

3.1 Verify that a point lies on a line, given an equation of the line. Students are able to derive linear equations using the point-slope formula (CS ALG 7.0).

3.2 Write the equation of a line given a graph, a slope and a point or two points, and express the equation in slope-intercept, standard, or point-slope form.

3.3 Given a set of data, draw a scatter plot, sketch the line of best fit, find an equation for the line, and use the line to predict other data points.

3.4 Determine whether lines are parallel or perpendicular and how those slopes are related (CS ALG 8.0).

3.5 Graph linear equations and inequalities in two variables and interpret the meaning of the shaded region for inequalities (CS ALG 6.0).

4.0 With respect to solving and interpreting systems of linear equations and inequalities,

4.1 Solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically (CS ALG 9.0)

4.2 Solve real life word problems (i.e. percent mixture, work, and rate) (CS ALG 15.0).

5.0 With respect to understanding exponents and roots,

5.1 Use the laws of exponents to simplify expressions and solve problems (CS ALG 2.0).

5.2 Simplify square roots including those with variables (non-negative values only) in the radicand.

5.3 Perform operations with square roots (add, subtract, multiply, and divide) (CS ALG 2.0).

5.4 Apply radicals in coordinate geometry (i.e. Pythagorean Theorem, Distance Formula).

6.0 With respect to exploring polynomial expressions and functions and rational expressions and functions,

6.1 Add, subtract, multiply and divide monomials and polynomials (CS ALG 10.0).

6.2 Apply basic factoring techniques to second-and simple third-degree polynomials. These techniques include finding a common factor for all terms in a polynomial, recognizing the difference of techniques include finding a common factor for all terms in a polynomial, recognizing the difference of two squares, and recognizing perfect squares of binomials (CS ALG 11.0).

6.3 Solve quadratic equations by factoring, completing the square, and by using the quadratic formula.

6.4 Sketch simple quadratic functions and illustrate that their roots are the x-Intercepts (CS ALG 21.0).

6.5 Simplify rational expressions with polynomial numerators and denominators (CS ALG 12.0).

6.6 Add, subtract, multiply, and divide rational expressions and functions (CS ALG 13.0).

INSTRUCTIONAL STRATEGIES AND TIMES:

Individual work on assignments	60%
Teacher/student evaluation of student practice	20%
Computer assisted learning	10%
Assessment	10%

EVALUATION:

1. Satisfactory completion of written assignments as evaluated by the instructor.

2. Satisfactory completion of teacher-made and/or standardized test as evaluated by the instructor.

3. Satisfactory progress and participation in classroom activities as evaluated by the instructor.

CONDITIONS FOR REPETITION:

Students who have failed to meet the objectives because of insufficient attendance or inability to master content may repeat the course.

Approved:
BOARD OF TRUSTEES
January 21, 1988

Revised:
May 20, 2002
August 21, 2006
June 14, 2010
May 26, 2015
October 26, 2015