WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Honors Algebra II
Course Number: 00241
Course Prerequisites: Honors Algebra I

Course Description: Honors Algebra II is the second course in the Honors Mathematics sequence designed for those students able to complete calculus prior to entering college. Changes in our society and technology require a strong background in basic algebra skills. This course expands upon the intense study of algebraic theory that was started in Honors Algebra I and will continue in Honors Geometry and additional advanced math courses. This course provides further use of practical problems to apply the theory and connect algebra to the real world. Honors Algebra II is intended for college-bound students who have an aptitude or interest in mathematics. It provides them with the opportunity to complete an additional year of advanced mathematics. Recommended grade of 75% or higher earned in Honors Algebra I Grade 8 and passed the Algebra I Keystone Exam with a Proficient or Advanced score. A final exam is required.

Suggested Grade Level: Grade 9
Length of Course: Two Semesters
Units of Credit: 1
PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:
CSPG #50 Mathematics (7 – 12)
To find the CSPG information, go to https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx
Certification verified by the WCSD Human Resources Department: ☒Yes ☐No

WCSD STUDENT DATA SYSTEM INFORMATION

Course Level: Honors & Dual Enrollment (1) GPA +5%
Mark Types: Check all that apply.
☒F – Final Average ☒MP – Marking Period ☒EXM – Final Exam

GPA Type: ☐ GPAEL-GPA Elementary ☐ GPAML-GPA for Middle Level ☒ NHS-National Honor Society
☒ UGPA-Non-Weighted Grade Point Average ☒ GPA-Weighted Grade Point Average

State Course Code: 02056
To find the State Course Code, go to https://nces.ed.gov/forum/sced.asp, download the Excel file for *SCED*, click on SCED 6.0 tab, and chose the correct code that corresponds with the course.

TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Board Approved Textbooks, Software, and Materials:

Title:	Big Ideas Math Algebra 2
Publisher:	Big Ideas Learning
ISBN #:	978-1-64208-806-9
Copyright Date:	2019
WCSD Board Approval Date:	8/10/2020

Supplemental Materials: kutasoftware.com

Curriculum Document

WCSD Board Approval:

Date Finalized:	6/5/2020
Date Approved:	6/29/2020
Date(s) Revised:	8/10/2020
Implementation Year:	2020-2021

SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

SCOPE AND SEQUENCE OF CONTENT, CONCEPTS, AND SKILLS

Performance Indicator	PA Core Standard and/or Eligible Content	Month Taught and Assessed for Mastery
Evaluate expressions and formulas	A2.1.2.1, A2.1.1.2, A2.1.2.1.2, A2.1.2.1.3, A2.1.2.2	September
Simplify algebraic expressions	A2.1.2.1.2, A2.1.2.1.3, A2.1.2.2	September
Solve linear equations	A2.1.2.2, A2.1.3.2, A2.1.3.2.2, A2.2.1.1	September
Solve absolute value equations	A2.1.2.1, A2.1.3.2.2	September
Solve inequalities	A2.1.2.1, A2.1.3.2.2	September
Solve absolute value inequalities	A2.1.2.1, A2.1.3.2.2	September
Find domain and range of relations and functions	A2.2.1.1.3	September
Write two-variable linear equations	A2.1.3.1.8, A2.2.2.1.4, A2.2.1.1	September
Solve systems of linear equations using graphing, substitution, and elimination	A2.1.3.1.8, A2.1.3.2.2	September
Simplify expressions using rules of exponents	A2.1.2.1, A2.1.2.1.3, A2.1.2.2	September
Simplify polynomial expressions	A2.1.2.1, A2.1.2.1.2, A2.1.2.1.3, A2.1.2.2	September
Factor polynomial expressions	A2.1.2.1, A2.1.2.2.1	September
Simplify square roots	A2.1.2.1, A2.1.2.1.2	September
Identify and describe transformations of families of functions (linear, absolute value, and quadratic)	A2.2.2.2, A2.2.2.2.1, A2.2.1.1, A2.2.1.1.1, A-REI.10	October
Write functions representing translations, reflections, stretches, shrinks, and combinations of transformations (linear and absolute value)	A2.1.3.1.4, A2.1.3.2, A2.2.1.1, A-CED.2	October
Write linear functions to model real-life problems	A2.1.3.1.4, A2.1.3.2, A2.2.2.1.4, A-CED.2, A-CED.3	October
Find lines of best fit for scatter plots	A2.1.3.1.4, A2.1.3.2, A2.2.1.1, A2.2.1.1.1, A2.2.3.1, A2.2.3.1.2, A-CED.2	October
Use technology to identify and interpret correlation coefficients for scatter plots	A2.2.3.1.1	October
Solve real-world problems using linear programming with systems in two variables	A2.1.3.1.4, A2.1.3.2.1, A-CED.3, A-REI.6	October
Solve systems of linear equations in three variables algebraically	A2.1.3.1.4, A2.1.3.2.2, A-CED.2, A-CED.4, A-CED.1, A-REI.3, A-SSE.2	October
Solve systems of linear equations in three variables using Cramer's Rule	A2.1.3.1.4	October
Apply systems of linear equations in three variables to real-life problems	A2.1.3.1.4, A2.1.3.2.2, A-CED.2, A-CED.3, A-CED.4, A-CED.1, A-REI.3, A-REI.6, A-SSE.2	October

Identify characteristics of quadratic functions	A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.1.4, A-REI.10, A-SSE.1	November
Graph and use quadratic functions in the form f(x) = ax^2	A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2, A2.2.2.2.1, A-REI.10	November
Graph and use quadratic functions in the form f(x) = ax^2 + c	A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2, A2.2.2.2.1, A-REI.10	November
Graph and use quadratic functions in the form f(x) = ax^2 + bx + c	A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2, A2.2.2.2.1, A-REI.10	November
Find the minimum and maximum values of quadratic functions	A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.3	November
Graph and use quadratic functions in vertex form	A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2.1, A-REI.10, A-SSE.1	November
Solve real-life problems involving quadratic functions	A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.1.4, A-REI.10, A-SSE.1, A-CED.3	November
Describe transformations of quadratic functions	A2.1.3.1.1, A2.2.1.1.4, A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.2, A2.2.2.2.1, A-REI.10, A-SSE.1a, A-SSE.1b	November
Write transformations of quadratic functions	A2.1.3.1, A2.1.3.1.1, A2.2.1.1.4, A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.2, A-CED.2, A-REI.10, A-SSE.1a, A-SSE.1b	November
Graph quadratic functions using intercepts	A2.1.3.1.1, A2.2.1.1.4, A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A-REI.10, A-SSE.1, A-SSE.1a, A-SSE.1b	November
Write quadratic functions when given the graph, the vertex and a point, or the x-intercepts	A2.1.1.2, A2.1.2.1, A2.1.3.1, A2.1.3.1.1, A2.2.1.1.4, A2.2.2.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.1.4, A-CED.2, A-CED.4, A-REI.10, A-SSE.1, A-SSE.2, A-SSE.3, A-SSE.3, A-SSE.1a, A-SSE.1b	November
Solve quadratic equations by graphing	A2.1.3.1, A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.8, A-APR.3, A-CED.2, A-CED.4, A-REI.4	December January
Solve quadratic equations using the Square Root Property	A2.1.2.1.2, A2.1.2.2.1, A-REI.4, A-REI.4b, A-SSE.1a	December January
Solve quadratic equations using the Zero Product Property	A2.1.2.2.1, A2.1.2.2.1, A-APR.3, A-CED.4, A-REI.3, A-REI.4, A-REI.4b, A-SSE.1a, A-SSE.3a	December January

Solve real-life problems using quadratic equations	A2.1.2.1.2, A2.1.2.2.1, A2.1.2.2.1, A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.8, A-APR.3, A-CED.2, A-CED.3, A-CED.4, A-REI.4, A-REI.4b, A-SSE.1, A-SSE.3a, A-SSE.3b	December January
Define and use the imaginary unit i	A2.1.1.1, A2.1.2.1.2	December January
Add, subtract, and multiply complex numbers	A2.1.1.1, A2.1.2.1.2	December January
Divide complex numbers	A2.1.1.1, A2.1.2.1.2	December January
Find complex solutions and zeros using the Square Root Property	A2.1.1.1, A2.1.2.1.2, A2.1.2.2.1, A-REI.4b, A-SSE.1a	December January
Solve quadratic equations containing Perfect Square Trinomials using square roots	A2.1.1.1, A2.1.2.1.2, A2.1.2.2.1, A2.1.2.2.1, A-APR.3, A-REI.4, A-REI.4b, A-SSE.1a, A-SSE.3a	December January
Solve quadratic equations by completing the square	A2.1.1.1, A2.1.2.1.2, A2.1.2.2.1, A2.1.2.2.1, A-APR.3, A-CED.4, A-REI.3, A-REI.4, A-REI.4a, A-REI.4b, A-SSE.1a, A-SSE.3a, A-SSE.3b	December January
Write quadratic functions in vertex form	A2.1.2.2.1, A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.8, A-APR.3, A-CED.2, A-SSE.1, A-SSE.1a	December January
Solve quadratic equations using the Quadratic Formula	A2.1.1.1, A2.1.2.1.2, A2.1.2.2.1, A-REI.4, A-REI.4b, A-SSE.1a	December January
Analyze the discriminant to determine the number and type of solutions	A2.1.1.1, A2.1.2.1.2, A2.2.1.1.4, A2.2.2.1.1, A-SSE.1a	December January
Graph quadratic inequalities in two variables	A2.1.2.2.1, A2.2.1.1.4, A2.2.2.1.8, A-APR.3, A-CED.2, A-SSE.3a	December January
Solve quadratic inequalities in one variable by graphing	A2.1.2.2.1, A2.1.2.2.1, A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.8, A-APR.3, A-CED.2, A-REI.4, A-SSE.3a	December January
Solve quadratic inequalities in one variable algebraically	A2.1.2.2.1, A2.1.2.2.1, A-REI.4, A-SSE.3a	December January
Identify polynomial functions	A2.2.1.1.4, A2.2.2.2, A2.2.2.2.1	January February
Graph polynomial functions using tables and describe their end behavior	A2.2.1.1.4, A2.2.2.1, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2, A2.2.2.2.1, A-CED.2	January February
Add, subtract, and multiply polynomials	A2.1.2.1.7, A2.1.2.2, A-APR.1, A-SSE.2, A-SSE.1a	January February
Divide polynomials using long division	A2.1.2.2, A-APR.6, A-SSE.2, A-SSE.1a	January February
Divide polynomials using synthetic division	A2.1.2.2, A-APR.6, A-SSE.2, A-SSE.1a	January February
Use the Remainder Theorem	A2.1.2.2, A-APR.2, A-APR.6	January February

Factor polynomials completely	A2.1.2.2.1, A-APR.3, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.3a	January February
Use the Factor Theorem	A2.1.2.2.1, A2.1.3.1, A2.2.2.1, A-APR.3, A-APR.6	January February
Find solutions of polynomial equations and zeros of polynomial functions	A2.1.1.1.3, A2.1.2.2.1, A2.1.3.1, A2.2.2.1, A2.2.2.1.4, A-APR.3, A-APR.6, A-SSE.2, A-SSE.3, A-SSE.3a	January February
Use the Rational Root Theorem	A2.1.3.1, A-APR.3, A-SSE.1a	January February
Use the Irrational Conjugates Theorem	A2.1.3.1, A-SSE.1a	January February
Use the Fundamental Theorem of Algebra	A2.1.3.1, A-SSE.3, A-SSE.1a, A-SSE.3a	January February
Use the Complex Conjugates Theorem	A2.1.1.1.3, A2.1.3.1, A-SSE.1a	January February
Use Descartes' Rule of Signs	A2.1.3.1, A2.2.2.1, A-SSE.1a	January February
Describe and write equations of transformations of polynomial functions	A2.1.2.1.7, A2.1.2.2, A2.1.3.1, A2.2.1.1.4, A2.2.2.1, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2, A2.2.2.2.1, A-APR.1, A-CED.3, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.3a	January February
Use x-intercepts to graph polynomial functions	A2.1.2.2.1, A2.2.1.1.4, A2.2.2.1, A2.2.2.1.4, A-APR.3, A-CED.2	January February
Use the Location Principle to identify zeros of polynomial functions	A2.1.2.2.1, A2.1.3.1, A2.2.1.1.4, A2.2.2.1, A2.2.2.1.3	January February
Find the turning points, and identify local maximums and minimums, of graphs of polynomial functions	A2.2.1.1.4, A2.2.2.1, A2.2.2.1.3, A2.2.2.2, A2.2.2.2.1	January February
Identify even and odd functions	A2.2.1.1.4, A2.2.2.1, A2.2.2.1.3, A2.2.2.2, A2.2.2.2.1, A-SSE.1a	January February
Find the nth root of numbers	A2.1.2.1, A2.1.2.1.2, A-SSE.2	March
Evaluate expressions with rational exponents	A2.1.1.2, A2.1.2.1, A2.1.2.1.1, A2.1.2.1.2	March
Solve equations using nth roots	A2.1.1.2, A2.1.2.1, A2.1.3.1, A2.1.3.1.2, A-REI.2	March
Use properties of rational exponents to simplify expressions with rational exponents	A2.1.1.2, A2.1.2.1, A2.1.2.1.1, A2.1.2.1.2, A2.1.2.1.3	March
Use properties of radicals to simplify and write radical expressions in simplest form	A2.1.1.2, A2.1.2.1, A2.1.2.1.2	March
Graph radical functions	A2.2.1.1.3, A2.2.2.1, A2.2.2.1.2, A-SSE.3, A-SSE.3c	March
Write transformations of radical functions	A2.1.3.1, A2.2.2.1, A2.2.2.1.2, A-SSE.2, A-SSE.3, A-SSE.3c	March

Solve equations containing radicals and rational exponents	A2.1.1.2, A2.1.2.1, A2.1.2.1.1, A2.1.2.1.2, A2.1.2.1.3, A2.1.3.1, A2.1.3.1.2, A-REI.2, A-SSE.2	March
Solve radical inequalities	A2.1.1.2, A2.1.2.1, A2.1.3.1, A2.1.3.1.2, A-REI.2	March
Add, subtract, multiply, and divide functions	A2.1.1.2, A2.1.2.1, A2.1.2.1.1, A2.1.2.1.3, A2.1.3.1, A-APR.1, A-SSE.2	March
Find and verify inverses of non-linear functions	A2.1.1.2, A2.1.2.1, A2.1.2.1.1, A2.1.3.1, A2.2.1.1.3, A2.2.2.1.2, A-APR.1	March
Solve real-life problems using inverse functions	A2.1.3.1, A2.1.3.1.2, A2.2.1.1.3, A2.2.2.1, A2.2.2.1.2, A-APR.1, A-REI.2	March
Simplify rational expressions	A2.1.2.2, A2.1.2.2.1, A2.1.2.2.2, A-APR.1, A-APR.6, A-APR.7, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b	April
Multiply and divide rational expressions	A2.1.2.2, A2.1.2.2.1, A2.1.2.2.2, A-APR.1, A-APR.6, A-APR.7, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b	April
Add and subtract rational expressions	A2.1.2.2, A2.1.2.2.1, A2.1.2.2.2, A-APR.1, A-APR.6, A-APR.7, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b	April
Simplify complex fractions	A2.1.2.2, A2.1.2.2.1, A2.1.2.2.2, A-APR.1, A-APR.6, A-APR.7, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b	April
Solve rational equations by cross-multiplying	A2.1.2.2, A2.1.2.2.1, A2.1.2.2.2, A2.1.3.1, A2.1.3.1.2, A-APR.1, A-REI.2, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b	April
Solve rational equations by using the least common denominator	A2.1.2.2, A2.1.2.2.1, A2.1.2.2.2, A2.1.3.1, A2.1.3.1.2, A-APR.1, A-REI.2, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b	April
Use sequence notation to write terms of sequences	A2.2.1.1, A2.2.1.1.1, A2.2.1.1.2	April May
Write a rule for the nth term of a sequence	A2.1.3.1, A2.2.1.1, A2.2.1.1.1, A-CED.2	April May
Sum the terms of a sequence to obtain a series and use summation notation	A2.2.1.1	April May
Identify arithmetic sequences	A2.2.1.1, A2.2.1.1.2	April May

Write function rules for arithmetic sequences	A2.1.3.1, A2.2.1.1, A2.2.1.1.1, A-CED.2	April May
Find sums of finite arithmetic sequences	A2.2.1.1	April May
Identify geometric sequences	A2.2.1.1, A2.2.1.1.2	April May
Write function rules for geometric sequences	A2.1.3.1, A2.1.3.1.3, A2.1.3.1.4, A2.2.1.1, A2.2.1.1.1, A-CED.2	April May
Find sums of finite geometric sequences	A2.2.1.1, A-SSE.4	April May
Solve real-life problems involving sequences and series	A2.1.3.1, A2.1.3.1.3, A2.1.3.1.4, A2.2.1.1, A2.2.1.1.1, A2.2.1.1.2, A-CED.2, A-SSE.4	April May

ASSESSMENTS

PSSA Academic Standards, Assessment Anchors, and Eligible Content: The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

Formative Assessments: The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

Effective formative assessments for this course include: Suggested but not limited to: Bell-Ringers, Exit Ticket, Cooperative Learning, Observations, Written Work, Quizzes, Oral Response, Self-evaluation, and Homework

Summative Assessments: The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

Effective summative assessments for this course include: Suggested but not limited to: Performance Assessment, Tests, and Projects