**COURSE DESCRIPTION**

**Course Title:** Algebra I- College Preparatory

**Course Number:** 00221

**Course Prerequisites:** Grade of 75% or higher in Pre-Algebra

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| **Course Description:** | This course provides an in-depth look at the foundation of algebraic theory that will be expanded in Algebra II College Preparatory, and Geometry College Preparatory and additional advanced mathematics courses. It uses practical problems to apply theory and connect algebra to the real world. Algebra I College Preparatory is intended for students planning on pursuing higher education, particularly those whose primary interest are in the fields that require strong background in math or science. A final exam is required. Keystone Exams are required of all students for graduation. If this state-mandated test is not passed, remediation will be required, and students will retake the exam. A recommended grade of 75% or above in Pre-Algebra 8 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

To find the CSPG information, go to [CSPG](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:** Academic

**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**: 02052

To find the State Course Code, go to [State Course Code](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:**  envision Algebra 1

**Publisher:** Pearson

**ISBN #:**  #10: 0-328-93154-3

**Copyright Date:** 2018

**WCSD Board Approval Date:** 6/29/2020

**Supplemental Materials:** kutasoftware.com

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** 6/5/2020

**Date Approved:**  6/29/2020

**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).

**SCOPE AND SEQUENCE OF CONTENT, CONCEPTS, AND SKILLS**

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| **Performance Indicator** | **PA Core Standard and/or Eligible Content** | **Month Taught and Assessed for Mastery** |
| Compare and order real numbers | A1.1.1.1, A1.1.1.1.1 | September |
| Find and estimate square roots | A1.1.1.1 | September |
| Find sums and differences of real numbers | A1.1.1.1, A-SSE.2, A-SSE.3 | September |
| Find products and quotients of real numbers | A1.1.1.1, A1.1.1.2, A-SSE.2, A-SSE.3 | September |
| Write algebraic expressions to model word phrases | A1.1.1.2, A1.1.2.1.1, A-CED.1, A-CED.3, A-SSE.2 | September |
| Solve multi-step equations in one variable | A1.1.1.2, A1.1.2.1.1, A-SSE.2, A-SSE.3 | September |
| Use equations to solve consecutive integer problems | A1.1.1.1, A1.1.1.2, A1.1.2.1.1, A1.1.2.1.3, A-CED.1, A-CED.3, A-SSE.1, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b | September |
| Solve equations with the variable on both sides | A1.1.1.2, A1.1.2.1.1 | September |
| Understand equations with infinitely many or no solutions | A1.1.1.2, A1.1.2.1.1, A1.1.2.1.3 | September |
| Write and solve equations to model real-world problems | A1.1.1.2, A1.1.2.1.1, A1.1.2.1.3, A-CED.1, A-CED.3, A-SSE.1, A-SSE.1a, A-SSE.1b | September |
| Use equations to solve distance-rate-time problems | A1.1.1.2, A1.1.2.1.1, A1.1.2.1.3, A-CED.1, A-CED.3, A-SSE.1, A-SSE.1a, A-SSE.1b | September |
| Construct a proof to justify a solution method | A1.1.1.2, A1.1.2.1.1, A1.1.2.1.2, A-REI.1 | September |
| Rewrite literal equations and formulas to highlight a variable of interest | A1.1.1.2, A1.1.2.1.2, A-CED.4, A-REI.1, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b | September |
| Use literal equations and formulas to solve problems | A1.1.1.2, A1.1.2.1.2, A1.1.2.1.3, A-CED.3, A-CED.4, A-SSE.1, A-SSE.1a, A-SSE.1b | September |
| Write and graph inequalities | A1.1.1.2, A1.1.3.1, A1.1.3.1.2, A-CED.1, A-CED.3 | October |
| Solve one-step inequalities | A1.1.1.2, A1.1.3.1, A1.1.3.1.2, A-CED.1 | October |
| Solve multi-step inequalities | A1.1.1.2, A1.1.3.1, A1.1.3.1.2, A-CED.1, A-REI.1 | October |
| Solve inequalities with the variable on both sides | A1.1.1.2, A1.1.3.1, A1.1.3.1.2, A-CED.1, A-CED.4, A-REI.1, A-SSE.1, A-SSE.2, A-SSE.1a | October |
| Understand inequalities with infinitely many or no solutions | A1.1.1.2, A1.1.3.1, A-CED.1 | October |
| Write and solve inequalities to model real-world problems | A1.1.1.2, A1.1.3.1, A1.1.3.1.3, A-CED.1, A-CED.3, A-SSE.1, A-SSE.3, A-SSE.1a, A-SSE.1b | October |
| Understand compound inequalities | A1.1.1.2, A1.1.3.1, A1.1.3.1.1, A1.1.3.1.2, A-CED.1, A-SSE.1, A-SSE.1a, A-SSE.1b | October |
| Solve a compound inequality involving “OR” | A1.1.1.2, A1.1.3.1, A1.1.3.1.1, A1.1.3.1.2, A-CED.1, A-SSE.1, A-SSE.1a, A-SSE.1b | October |
| Solve a compound inequality involving “AND” | A1.1.1.2, A1.1.3.1, A1.1.3.1.1, A1.1.3.1.2, A-CED.1, A-SSE.1, A-SSE.1a, A-SSE.1b | October |
| Use compound inequalities to model and solve real-world problems | A1.1.1.2, A1.1.3.1, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A-CED.1, A-CED.3, A-SSE.1, A-SSE.3, ASSE.1a, A-SSE.1b | October |
| Understand and solve absolute value equations | A1.1.1.2, A1.1.1.3, A1.1.3.1, A1.1.3.1.1, A1.1.3.1.2, A-CED.1, A-SSE.1, A-SSE.2, A-SSE.1a, A-SSE.1b | October |
| Apply absolute value equations to model and solve real-world problems | A1.1.1.2, A1.1.1.3, A1.1.3.1, A1.1.3.1.1, A1.1.3.1.3, A-CED.1, A-CED.3, A-SSE.1, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b | October |
| Understand and solve absolute value inequalities | A1.1.1.2, A1.1.1.3, A1.1.3.1, A1.1.3.1.1, A1.1.3.1.2, A-CED.1, A-SSE.1, A-SSE.2, A-SSE.1a, A-SSE.1b | October |
| Apply absolute value inequalities to model and solve real-world problems | A1.1.1.2, A1.1.1.3, A1.1.3.1, A1.1.3.1.1, A1.1.3.1.3, A-CED.1, A-CED.3, A-SSE.1, A-SSE.2, A-SSE.3, A-SSE.1a, A-SSE.1b | October |
| Compute the slope of a linear relationship | A1.1.1.1, A1.2.1.1, A1.2.2.1, A1.2.2.1.1 | October  November |
| Graph linear equations in slope-intercept form | A1.1.2.1, A1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1, A1.2.2.1.1, A1.2.2.1.4, A-CED.2, A-REI.10, A-SSE.1a | October  November |

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| Write a linear equation from a graph | A1.1.2.1, A1.1.2.1.1, A1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4, A-CED.2, A-REI.10, A-SSE.1a | October  November |
| Write linear equations in slope-intercept form | A1.1.2.1, A1.1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2, A-SSE.1a | October  November |
| Write linear equations in slope-intercept form to model real-world problems | A1.1.2.1, A1.1.2.1.1, A1.1.2.1.3, A1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2, A-CED.3, A-SSE.1a | October  November |
| Interpret the slope and y-intercept of a linear equation that models a real-world problem | A1.1.1.1, A1.1.2.1.3, A1.2.1.2, A1.2.1.2.1, A1.2.2.1, A1.2.2.1.1, A1.2.2.1.2, A1.2.2.1.4, A-CED.3, A-SSE.1a | October  November |
| Write linear equations in point-slope form | A1.1.2.1, A1.1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2, A-SSE.1a | October  November |
| Graph linear equations in point-slope form | A1.1.2.1, A1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1, A1.2.2.1.1, A-CED.2, A-REI.10, A-SSE.1a | October  November |
| Write linear equations in point-slope form to model real-world problems | A1.1.2.1, A1.1.2.1.1, A1.1.2.1.3, A1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2, A-CED.3, A-SSE.1a | October  November |
| Transform equations from point-slope to slope-intercept form | A1.1.2.1, A1.1.2.1.1, A1.2.1.2, A1.2.1.2.2, A-CED.4, A-SEE.2, A-SSE.3, A-SSE.1a | October  November |
| Compare slope-intercept form to standard form | A1.1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, A-SSE.1a | October  November |
| Graph an equation in standard form by using intercepts | A1.1.2.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, A-CED.2, A-REI.10, A-SSE.1a | October  November |
| Relate standard form to horizontal and vertical lines | A1.1.2.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2 | October  November |
| Write linear equations in standard form to model real-world problems | A1.1.2.1, A1.1.2.1.1, A1.1.2.1.3, A1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2, A-CED.3, A-SSE.1a | October  November |
| Transform equations from standard form to slope-intercept form | A1.1.2.1, A1.1.2.1.1, A1.2.1.2, A1.2.1.2.2, A-CED.4, A-SSE.2, A-SSE.3, A-SSE.1a | October  November |
| Determine whether lines are parallel, perpendicular, or neither | A1.1.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1, A1.2.2.1.1 | October  November |
| Write an equation of a parallel line | A1.1.2.1, A1.1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2 | October  November |
| Write an equation of a perpendicular line | A1.1.2.1, A1.1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2 | October  November |
| Use parallel and perpendicular lines in real-world problems | A1.1.2.1, A1.1.2.1.1, A1.1.2.1.3, A1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2, A-CED.3, A-SSE.1a | October  November |
| Identify the domain and range of a relation | A1.2.1.1, A1.2.1.1.3 | November  December |
| Find a reasonable domain and range for a real-world problem | A1.1.2.1.3, A1.2.1.1.3 | November  December |
| Identify constraints on a domain | A1.1.2.1.3, A1.2.1.1.3 | November  December |
| Identify functions | A1.2.1.1.2, A1.2.1.1.3 | November  December |
| Evaluate functions in function notation | A1.1.2.1.1 | November  December |
| Write a linear function rule | A1.1.2.1, A1.1.2.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1, A1.2.2.1.3, A-CED.2 | November  December |
| Write linear functions to model and solve real-world problems | A1.1.2.1, A1.1.2.1.1, A1.1.2.1.3, A1.2.1.2, A1.2.1.2.1, A1.2.2.1.3, A-CED.2, A-CED.3 | November  December |
| Identify patterns within a sequence | A1.2.1.1, A1.2.1.1.1, A1.2.2.1 | November  December |
| Identify arithmetic sequences | A1.2.1.1, A1.2.1.1.1, A1.2.2.1, A1.2.2.1.2 | November  December |
| Write a formula to model arithmetic sequences (explicit formula only!) | A1.1.2.1, A1.1.2.1.1, A1.2.1.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1, A1.2.2.1.3, A-CED.2 | November  December |
| Graph arithmetic sequences | A1.1.2.1, A1.2.1.1.1, A1.2.1.2.1, A1.2.1.2.2, A-CED.2, A-REI.10 | November  December |
| Solve problems involving arithmetic sequences | A1.1.2.1.1, A1.1.2.1.3, A1.2.1.2, A1.2.1.2.1 | November  December |
| Identify the association shown in a scatter plot | A1.2.1.1, A1.2.1.1.1, A1.2.2.1, A1.2.2.2, A1.2.3.2.2 | November  December |
| Write the equation of a trend line for a scatter plot | A1.1.2.1, A1.1.2.1.1, A1.2.1.1.1, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1, A1.2.2.1.3, A1.2.2.2, A1.2.2.2.1, A-CED.2 | November  December |
| Use the graph and/or equation of a trend line to make predictions | A1.1.2.1.1, A1.1.2.1.3, A1.2.1.2, A1.2.1.2.1, A1.2.2.2, A1.2.3.2, A1.2.3.2.2, A1.2.3.2.3, A-CED.3 | November  December |

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| Verify solutions to systems of equations | A-REI.10 | January |
| Solve systems of equations by graphing | A1.1.2.2, A1.1.2.2.1, A1.2.1.2.4, A1.2.2.1.1, A-REI.6 | January |
| Solve systems of equations by substitution | A1.1.2.2, A1.1.2.2.1, A-REI.6, A-SSE.2, A-SSE.1a | January |
| Solve systems of equations by elimination | A1.1.2.2, A1.1.2.2.1, A-REI.5, A-REI.6, A-SSE.2, A-SSE.1a | January |
| Identify systems with infinitely many or no solutions from using any method | A1.1.2.2, A1.1.2.2.1 | January |
| Write systems of equations to model and solve real-world problems | A1.1.2.2, A1.1.2.2.1, A1.1.2.2.2, A-CED.2, A-CED.3, A-SSE.1, A-SSE.1a | January |
| Write systems of equations to model and solve wind & water current problems | A1.1.2.2, A1.1.2.2.1, A1.1.2.2.2, A-CED.2, A-CED.3, A-SSE.1, A-SSE.1a | January |
| Determine the number of solutions to a system of equations without solving | A1.2.1.2.4, A1.2.2.1.1, A-SSE.2, A-SSE.1a | January |
| Graph a linear inequality in two variables | A1.1.3.2, A1.2.1.2.4, A1.2.2.1.1, A-CED.2, A-REI.12 | January |
| Write a two-variable inequality to model a graph | A1.1.3.2, A1.1.3.2.1, A1.2.1.2.4, A1.2.2.1.1 | January |
| Write and graph linear inequalities in two variables to model real-world problems | A1.1.3.2, A1.1.3.2.1, A1.1.3.2.2, A1.2.1.2.4, A1.2.2.1.1, A-CED.3, A-REI.12, A-SSE.1 | January |
| Graph a system of linear inequalities in two variables | A1.1.3.2, A1.2.1.2.4, A1.2.2.1.1, A-REI.12 | January |
| Write a system of linear inequalities in two variables to model a graph | A1.1.3.2, A1.1.3.2.1, A1.2.1.2.4, A1.2.2.1.1 | January |
| Write a system of linear inequalities to model real-world problems | A1.1.3.2, A1.1.3.2.1, A1.1.3.2.2, A-CED.3, A-SSE.1 | January |
| Graph the Absolute Value function | A1.1.1.3, A1.1.2.1, A1.2.1.1, A1.2.1.1.2, A1.2.1.2.6, A1.2.2.1.1, A-CED.2, A-SSE.1 | February |
| Transform the graph of an absolute value function | A1.1.1.3, A1.1.2.1, A1.2.1.1, A1.2.1.1.2, A1.2.1.2.6, A1.2.2.1.1, A-CED.2, A-SSE.1 | February |
| Interpret the graph of an absolute value function that models a real-world situation | A1.1.1.3, A1.1.2.1.1, A-CED.3, A-SSE.1 | February |
| Simplify monomial expressions by using the rules of exponents | A1.1.1.1, A1.1.1.2, A1.1.1.3, A1.1.1.3.1, A-SSE.2, A-SSE.3c | February |
| Represent real numbers in standard form and scientific notation | A1.1.1.1, A1.1.1.3, A1.1.1.3.1, A-SSE.2 | February |
| Identify exponential functions | A1.2.1.1, A-SSE.3c | February |

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| Evaluate and graph exponential functions | A1.1.1.3, A1.2.1.1, A-SSE.3c | February |
| Write exponential functions | A1.1.1.3, A1.2.1.1.1, A-CED.2 | February |
| Compare linear and exponential functions | A1.2.1.1 | February |
| Identify exponential growth and decay | A1.1.1.3, A1.2.1.1 | February |
| Write exponential functions to model and solve real-world problems | A1.1.1.1, A1.1.1.2, A1.1.1.3, A1.2.1.1.1, A-CED.2 | February |
| Identify and graph geometric sequences | A1.2.1.1, A-CED.2, A-SSE.3c | February |
| Write a formula for a geometric sequence (explicit formula only!) | A1.1.1.1, A1.1.1.3, A1.2.1.1.1, A-CED.2, A-SSE.3c | February |
| Classify polynomials by their degree and number of terms | A-SSE.1a | March |
| Write polynomials in standard form | A-SSE.2, A-SSE.1a | March |
| Add and subtract polynomials | A1.1.1.5.1, A-APR.1, A-SSE.1a | March |
| Multiply polynomials (no larger than a binomial times a trinomial) | A1.1.1.5.1, A-APR.1, A-SSE.1a | March |
| Find the square of a binomial | A1.1.1.5.1, A-APR.1, A-SSE.2, A-SSE.1a | March |
| Use the sum and difference pattern | A1.1.1.5.1, A-APR.1, A-SSE.1a | March |
| Factor polynomials using the GCF | A1.1.1.2.1, A1.1.1.5.2, A-SSE.2, A-SSE.1a, A-SSE.3a | March |
| Factor trinomials without a leading coefficient | A1.1.1.5.2, A-SSE.2, A-SSE.1a, A-SSE.3a | March |
| Factor trinomials with a leading coefficient (the leading coefficient is NOT always the GCF) | A1.1.1.2.1, A1.1.1.5.2, A-SSE.2, A-SSE.1a, A-SSE.3a | March |
| Factor by grouping | A1.1.1.2.1, A1.1.1.5.2, A-SSE.2, A-SSE.1a, A-SSE.3a | March |
| Factor special-case polynomials (difference of squares, perfect square trinomial) | A1.1.1.5.2, A-SSE.2, A-SSE.1a, A-SSE.3a | March |
| Factor polynomials completely | A1.1.1.2.1, A1.1.1.5.2, A-SSE.2, A-SSE.1a, A-SSE.3a | March |
| Use polynomials and their operations to model and solve real-world problems | A1.1.1.5.1, A-CED.1, A-SSE.1, A-SSE.3, A-SSE.1a | March |
| Simplify rational expressions | A1.1.1.2.1, A1.1.1.5.2, A1.1.1.5.3, A-APR.6, A-APR.7, A-SSE.2, A-SSE.1a | March |
| Use the Zero-Product Property to solve quadratic equations by factoring | A1.1.1.2.1, A1.1.1.5.2, A-APR.3, A-REI.4, A-SSE.2, A-SSE.3a | April |
| Use the Product Property of Square Roots to simplify radical expressions (numbers only, no variables!) | A1.1.1.1, A1.1.1.1.2, A-SSE.2 | April |
| Solve quadratic equations by using square roots | A1.1.1.1, A1.1.1.1.2, A-REI.4, A-SSE.2 | April |
| Use quadratic equations to model and solve real-world problems | A1.1.1.5.1, A1.1.1.5.2, A-APR.1, A-CED.1, A-REI.4, A-SSE.1, A-SSE.2, A-SSE.3a | April |
| Represent and interpret data using various representations (dot plot, histogram, Box-and-Whisker plot) | A1.2.3.1.1, A1.2.3.2, A1.2.3.2.2, CC.2.4.HS.B.1 | April |
| Compare data sets that are displayed with the same representation (dot plot, histogram, Box-and-Whisker plot) | A1.2.3.1, A1.2.3.1.1, A1.2.3.2, A1.2.3.2.2, CC.2.4.HS.B.1 | April |
| Interpret and compare shapes of distributions | A1.2.3.1, A1.2.3.2, A1.2.3.2.2, CC.2.4.HS.B.1 | April |
| Find and make conclusions about measures of center (mean and median) | A1.2.3.2, A1.2.3.2.2, CC.2.4.HS.B.1 | April |
| Compute and interpret the standard deviation of a data set | A1.2.3.1, A1.2.3.2.2, CC.2.4.HS.B.1 | April |
| Compare data sets using the standard deviation | A1.2.3.1, A1.2.3.2, A1.2.3.2.2, CC.2.4.HS.B.1 | April |
| Make and interpret data using a two-way frequency table | A1.2.3.2, A1.2.3.2.2, CC.2.4.HS.B.2 | April |

**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: Observations, Evaluate written work, Evaluate oral response, student self-evaluation, Cooperative Learning, Homework, Classroom Diagnostic Tool, Projects, Exit Tickets, Quizzes,

**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, Quizzes, and Chapter/Unit Tests