

Cosby High School

Part 1: Course Information

Instructor Information

Course: Algebra I

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Course Description

General Education/High School Pathway Area

- Algebra I is required for all high school students.

Textbook & Course Materials

Required Text

- *enVision Algebra I*

Course Requirements

- Attendance is very important because students earn participation grades on a daily basis.

Course Structure

Methods: Students will take daily notes and will participate in problem solving as part of a large group, small group, and partner work. Students will have ample time during class to practice math calculations, ask questions, and problem solve. Students will be allowed to retake quizzes to increase grade averages as many times as they choose to do so.

Assessment Methods

Daily participation grade/in-class assignment completion
Weekly Quiz grade/Mastery Connect Weekly Quiz
End-of-course test

Part 2: Student Learning Outcomes

Learning Outcomes for Algebra I

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively

- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeated reasoning
- Use multiple reading strategies
- Understand and use correct mathematical vocabulary
- Discuss and articulate mathematical ideas
- Write mathematical arguments

Algebra I Standards

- A1.N.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
- A1.N.Q.A.2 Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling
- A1.N.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
- A1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.
- A1.A.SSE.A.1a Interpret parts of an expression, such as terms, factors, and coefficients.
- A1.A.SSE.A.1b Interpret complicated expressions by viewing one or more of their parts as a single entity.
- A1.A.SSE.A.2 Use the structure of an expression to identify ways to rewrite it.
- A1.A.SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.
- A1.A.SSE.B.3a Factor a quadratic expression to reveal the zeros of the function it defines.
- A1.A.SSE.B.3b Complete the square in a quadratic expression in the form $Ax^2 + Bx + C$ to reveal the maximum of the function it defines.
- A1.A.SSE.B.3c Use the properties of exponents to rewrite exponential expressions.

- A1.A.APR.A.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials
- A1.A.APR.B.2 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
- A1.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems
- A1.A.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations with two variables on coordinate axes with labels and scales.
- A1.A.CED.A.3 Represent constraints by equations or inequalities and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.
- A1.A.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
- A1.A.REI.A.1 Explain each step in solving an equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method
- A1.A.REI.B.2 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
- A1.A.REI.B.3 Solve quadratic equations and inequalities in one variable.
- A1.A.REI.B.3a Use the method of completing the square to rewrite any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.
- A1.A.REI.B.3b Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, knowing and applying the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.
- A1.A.REI.C.4 Write and solve a system of linear equations in context.
- A1.A.REI.D.5 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
- A1.A.REI.D.6 Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the approximate solutions using technology

- A1.A.REI.D.7 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
- A1.F.IF.A.1 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.
- A1.F.IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
- A1.F.IF.B.3 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.
- A1.F.IF.B.4 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes
- A1.F.IF.B.5 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
- A1.F.IF.C.6 Graph functions expressed symbolically and show key features of the graph, by hand and using technology.
- A1.F.IF.C.6a Graph linear and quadratic functions and show intercepts, maxima, and minima.
- A1.F.IF.C.6b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
- A1.F.IF.C.7 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function
- A1.F.IF.C.7a Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
- A1.F.IF.C.8 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
- A1.F.BF.A.1 Write a function that describes a relationship between two quantities

- A1.F.BF.A.1a Determine an explicit expression, a recursive process, or steps for calculation from a context.
- A1.F.BF.B.2 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.
- A1.F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions
- A1.F.LE.A.1a Recognize that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.
- A1.F.LE.A.1b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
- A1.F.LE.A.1c Recognize situations in which a quantity grows or decays by a constant factor per unit interval relative to another.
- A1.F.LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a table, a description of a relationship, or input output pairs.
- A1.F.LE.A.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.
- A1.F.LE.B.4 Interpret the parameters in a linear or exponential function in terms of a context
- A1.S.ID.A.1 Represent single or multiple data sets with dot plots, histograms, stem plots (stem and leaf), and box plots.
- A1.S.ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
- A1.S.ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
- A1.S.ID.B.4 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
- A1.S.ID.B.4a Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context.

- A1.S.ID.B.4b Fit a linear function for a scatter plot that suggests a linear association
- A1.S.ID.C.5 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
- A1.S.ID.C.6 Use technology to compute and interpret the correlation coefficient of a linear fit
- A1.S.ID.C.7 Distinguish between correlation and causation.

Part 3: Topic Outline/Schedule 2024-2025

Semester 1:

August 2	Discuss expectations; Discuss classroom/school rules
August 5-9	Create math dictionary, create & label a number line and number System
August 12-16:	Operations on real numbers; solving linear equations, solving equations with a variable on both sides, literal equations and formulas
August 19-23	Solving inequalities in one variable, compound inequalities, and absolute value equations and inequalities
August 26-30	Slope-intercept form, point-slope form
September 3-6	Standard form, parallel and perpendicular lines
September 9-13	Relations and functions, linear functions, transforming linear Functions
September 16-20	Arithmetic sequences, scatter plots and lines of fit
September 23-27	Analyzing lines of fit, solving systems of equations by graphing, solving systems of equations by substitution
September 30-October 4	Solving systems of equations by elimination
October 7-11	Fall Break
October 15-18	Linear inequalities in two variables, systems of linear inequalities

October 21-25	The absolute value function, piecewise defined functions, step- Functions
October 28- November 1	Transformations of piece-wise defined functions, rational exponents and properties of exponents
November 4-8	Exponential functions, exponential growth and decay
November 11-15	Geometric sequences, transformations of exponential functions
November 18-22	Adding and subtracting polynomials, multiplying polynomials
November 25-26	Review
November 27-29	Thanksgiving Break
December 2-6	Multiplying special cases, factoring polynomials, factoring
December 9-13	Factoring, factoring special cases
December 16-20	Review, Semester Exams
December 23- January 3	Winter Break

Semester 2:

January 6-10	Key features of a quadratic function, quadratic functions in vertex form, quadratic functions in standard form
January 13-17	Modeling with quadratic functions, linear/exponential/and quadratic Models
January 21-24	Solving quadratic equations using graphs and tables, solving quadratic equations by factoring
January 27-31	Rewriting radical expressions, solving quadratic equations using square roots, completing the square
February 3-7	The quadratic formula and the discriminant, solving systems of linear and quadratic equations
February 10-14	The square root function, the cubic root function
February 18-21	Analyzing functions graphically, translations of functions
February 24-28	Compressions and stretches of functions, operations of functions

March 3-7	Inverse functions, analyzing data displays
March 10-14	Comparing data sets, interpreting the shapes of data displays, standard deviation
March 17-21	Two-way frequency tables
March 24-31	Spring Break
April 1-4	Review for End-of-course testing
April 7-11	Practice EOC tests, review
April 14-May 6	EOC tests: Algebra I, Algebra II, Geometry, English I, English II, U.S. History, Biology
May 7-9	Telling time on an analog clock, counting money
May 12-16	Budgeting, counting money, making change
May 19-21	Review, semester exams/tests

Part 4: Grading Policy

Grading Scale

90-100 = A; 80-89 = B; 70-79 = C; 60-69 = D; 0-59 = F

***Disclaimer: Assignments may change at any time.

Nine Weeks Grade

The nine weeks' grade is comprised of 50% class work and 50% quizzes/tests grades.

Late Work Policy

Student late work will be accepted for full credit. Class work is graded for completion not accuracy. Student quizzes/tests will be checked for accuracy. Students have the opportunity to redo missed questions/problems on each quiz/test for full credit. Mastery Connect quizzes may be redone on paper and full credit is given for questions corrected.

Final Exam Policy

As daily attendance at school is critical for academic success, Cosby High School has added an incentive to the academic program to reward individual daily attendance.

- All **non-EOC teachers** are required to administer a comprehensive final exam that assesses the mastery of standards taught throughout the semester.
- **EOC teachers** are required to administer a graded quiz or test during the final exam blocks on the dates listed above. EOC quick scores are used in the final exam column and weighted as the final exam. The graded quiz or test will be averaged with the 4th nine weeks' grades.
- Exams are given on the last two days of both semesters. The grades on these exams will count 15% of the overall course average.

Attendance Policy

Attendance is extremely important to the education of each student. Students are expected to complete any and all work missed when they are absent. Please refer to the school district's attendance policy.

School Year 2024-2025 Final Exam Dates

Fall 2024

December 19– 2nd, 4th, 6th, and 8th periods
December 20 – 1st, 3rd, 5th, and 7th periods

Spring 2025

May 20 – 2nd, 4th, 6th, and 8th periods
May 21 – 1st, 3rd, 5th, and 7th periods

(In the spring, exam dates for seniors are adjusted to allow time to average grades for graduation.)

ALL students in grades 9-12 have an opportunity to earn exemption on the final exam in non-EOC courses and/or final quiz/test given in the EOC courses. Teachers will follow the following guidelines in determining student exam exemption:

- The student has missed no more than 3 days (excused or unexcused) in the semester prior to the first day of finals.
- Absences for a school related activity (field trip, CTE program, athletic competition, etc.) does not count as an absence.
- The student is passing the class prior to the exams.

The student who qualifies for exam exemption may opt to take the exam on a no harm basis. If the exam grade damages the class average, then the exam grade will not count.

Teachers will administer tests in all courses and for all students except for those students who qualify for and accept the exemption.

Part 5: Course Policies

Students are expected to show respect for themselves and others at all times while on campus. Cell phones are not to be seen or heard during the duration of school day. A TI-84 calculator is provided for each student while in class, however, calculators are to remain in the classroom. Students are allowed to have water bottles containing water only.

Tutoring

Tutoring is offered on Tuesday and Thursday mornings from 7:30 a.m. until 8:00 a.m. and on Wednesdays from 3:15 p.m. to 3:45 p.m. A tutoring form must be filled out by the parent/guardian in order for a student to attend. Once the tutoring permission slip has been turned in, the student will receive a tutoring pass which they will need in order to report to the classroom. Only one pass per student will be given out each semester, so the student must be responsible for its upkeep.

Academic Dishonesty Policy

Students caught cheating will receive a zero on the assignment/quiz and will not be allowed to redo that assignment or quiz.

According to Harbrace Handbook, 15th edition:

- **Plagiarism** is defined as “presenting someone else’s ideas, research, or opinions as your own without proper documentation, even if it has been rephrased.”
- This includes but is not limited to:
 - Copying verbatim all or part of another’s written work;
 - Using phrases, figures, or illustrations without citing the source;
 - Paraphrasing ideas, conclusions, or research without citing the source;
 - Using all or part of a literary plot, poem, or film without attributing the work to its creator.

Consequences of Plagiarism

- Plagiarism is a form of stealing and academic fraud.
- Students who are found guilty of plagiarism have the option of either redoing the assignment within a specified time period and accept a letter drop or taking a zero on the assignment.
- Parents are to be involved in making this decision.

Religion in the Classroom

The board affirms that it is essential that the teaching about religion-and not of a religion be conducted in a factual, objective, and respectful manner in accordance with the following guidelines:

1. Religious themes may be a part of the curriculum for school-sponsored activities and programs provided it is essential to the learning experience in the various fields of study and is presented objectively;
2. The inclusion of religion shall be for educational purposes only;1
3. The emphasis on religious themes should be only as extensive as necessary for a balanced and comprehensive study of the curriculum. Such studies shall never be used to proselytize, establish, foster, or demean any particular religion, religious tenets, or beliefs; and1
4. Student-initiated expressions to questions or assignments which reflect their beliefs or non-beliefs about a religious theme shall be accommodated.