

ALGEBRA 1 HONORS STANDARDS

Revised 2001 2007

IMPORTANT NOTE: The following 4 topics are NOT to be used at any time on an Algebra 1 test.

1. Complex numbers
2. Sum/Difference of cubes
3. Trigonometry
4. Probability/Statistics

Any topics NOT on this list CANNOT be included on any Algebra I test.

Compare and contrast the real number system and its various subsystems with regard to their structural characteristics.

- Identify and apply the field properties of Real number system and its subsystems.
- Identify subsystems of Real numbers.
- Identify and apply the properties of equality and order to the Real number system and its subsystems.
- Apply the definition of absolute value in algebraic and geometric situations.

Demonstrate an understanding of algebraic procedures and symbolism.

- Translate between word phrases/sentences and algebraic expressions/equations and/or inequalities.
- Perform operations on Real numbers.
- Perform operations on polynomials.
- Factor polynomials. (see above for restrictions)
- Use the laws of exponents.
- Solve linear equations and inequalities in one variable.
- Solve a system of two first-degree equations with two variables using a variety of strategies.
- Solve absolute value equations.

Use algebraic and related strategies to solve problems.

- Solve real world and mathematical problems using first-degree equations and inequalities.
- Solve real world and mathematical problems using a system of two first-degree equations in two variables.
- Solve the following types of word problems: mixture, percent, work, distance/rate/time, coin, and current/wind speed.

Demonstrate an understanding of the geometry associated with equations and inequalities.

- Determine and apply relationships among a first-degree equation in one variable; its corresponding inequalities; and their number line graphs.
- Determine and apply relationships among a simple first-degree equation in one variable involving absolute value; its corresponding inequalities; and their number line graphs.
- Determine relationships involving numerical coefficients; slopes; and y-intercept; between first-degree equations in two variables and lines in the Cartesian plane.
- Determine the relationships between first-degree inequalities in two variables and half-plane in the Cartesian plane.
- Determine solutions in systems of two first-degree equations in two variables using graphs in the Cartesian coordinate system.
- Compare the solutions of a quadratic equation in one variable with the x-intercepts of the Cartesian graph of the corresponding quadratic function.

ONLY THE ABOVE CAN BE INCLUDED ON JANUARY AND FEBRUARY TESTS
THE FOLLOWING TOPICS MAY BE INCLUDED ON MARCH TESTS ONLY.

- Perform operations on rational algebraic expressions.
- Perform operations of radical expressions.
- Pythagorean Theorem, Midpoint formula, Distance formula
- Solve quadratic equations in one variable.
- Solve equations involving rational algebraic expressions and radical expressions.
- Solve equations involving absolute value.
- Represent and interpret functions and relations with ordered pairs; mapping tables; and Cartesian graphs.
- Use and apply functional notation in situations involving mappings; tables; and Cartesian graphs.
- Solve real world and mathematical problems using equations with rational or radical expressions in one variable.
- Solve real world and mathematical problems involving direct and inverse variation.