

Algebra Honors Readiness Profile and Course Expectations

Textbook: Algebra 1, Dolciani

Students in this course are on track for completion of Calculus in 12th grade..

Student Background:

Students entering Algebra Honors should already have a strong understanding of the following concepts:

- Adding, subtracting, multiplying and dividing fractions, decimals, and integers,
- Simplifying expressions involving absolute value and exponents
- Order of Operations and basic properties
- Solving multi-step equations and multi-step inequalities
- Graphing linear equations using the slope and y-intercept
- Percents, ratios, proportions, simple Interest, compound interest, commission and profit, percent of increase and percent of decrease
- Applying Algebra to Right triangles (basic trigonometry)
- Basic Geometry (Area, perimeter, volume, surface area)
- Solving Algebra word problems involving area, perimeter, consecutive integers, percents, proportions, distance, mixture, coin and age
- Basic algebra proofs and set theory
- Statistics and Probability

Students entering Algebra Honors should be able to solve problems such as:

<p><u>Example Equation Problem</u></p> <p>1) $\frac{3}{8}x - (-2\frac{1}{3}) = \frac{9}{2}x$</p> <p>2) $\frac{2x-7}{5} = \frac{5x+6}{7}$</p>	<p><u>Word Problem</u></p> <p>The rate of a moving van is 24 mph faster than that of a delivery truck. If the van travels the same distance in 5 hours as the truck travels in 7 hours, find the rates of each vehicle.</p>
<p><u>Graphing Problem</u></p> <p>Graph the following equation using slope-intercept form. Then state the x- and y-intercepts of the graph.</p> $\frac{-3y + 2x}{3} = -2$	<p><u>Number Sense Problem</u></p> $3(5^2 - 1) - 10(3^3) \div 5$

Workload Expectations:

Algebra Honors is an advanced course that maintains a pace of approximately 1 section per hour of class and one chapter every 2 to 3 weeks. Students are expected to spend approximately 45 minutes to one hour outside of class on homework for each class hour. Tests and quizzes will account for 2/3 of the report card grade. Homework, based on completion and accuracy, will account for 1/3 of the report card grade.

In Algebra Honors, students will learn concepts such as:

- Solving multi-step equations and inequalities with fractions, decimals and variables on both sides
- Algebra proofs
- Solving Algebra word problems involving: integers, geometry, uniform motion, currents, mixture, age, digits and work
- Graphing linear equations using the slope and x- and y-intercepts, and determining the equation of a line
- Solving systems of linear equations and inequalities
- Adding, subtracting, multiplying, dividing and factoring polynomials
- Operations with rational expressions and solving rational equations
- Direct and inverse variation
- Irrational numbers, radicals, radical operations and radical equations
- Solving and graphing quadratic equations and functions
- Solving and graphing polynomial functions beyond quadratic functions
- Trigonometry
- Vectors and introduction to the Unit Circle
- Statistics including variance and standard deviation