

Curriculum Profiles 8th Grade Algebra I (as of 6/7/05)

0. Assumed Knowledge

- a. Convert decimals, which represent rational numbers into common fraction form
- b. Solve percent problems
- c. Graph ordered pairs of numbers, and state the coordinates of points in a coordinate pairs

1. Functions, Equations and Inequalities

- a. Evaluate, apply and solve formulas
- b. Simplify numerical and variable expressions which involve arithmetic operations, power or grouping symbols
- c. Translate word phrases or sentences into mathematical expressions and sentences and solve the sentences

(reference Chapter 1)

(State Goals: 6B, 8)

2. Linear Functions and Systems

- a. Solve and graph open sentences in one and two variables
- b. Find the slope and y-intercept of a non-vertical line given its graph
- c. Determine the solution set of a system of two linear equations in two variables by using graphs, linear combinations and substitution

(reference Chapter 2)

(State Goals: 8)

3. Exponents

- a. Evaluate expressions including positive and negative exponents
- b. Evaluate expressions using scientific notation

(reference Chapter 6)

(State Goals: 6A, 8)

4. Polynomials and Factoring

- a. Evaluate polynomials with positive and negative exponents
- b. Factor polynomial expressions

(reference Chapter 7)

(State Goals: 8)

5. Quadratic Functions

- a. Use graphs to interpret information from various tables and equations
- b. Solve quadratic equations by factoring, completing the square and the quadratic formula
- c. Graph quadratic functions, simple polynomial functions and quadratic inequalities

(reference Chapter 8)

(State Goals: 6C, 8)

6. Radicals and Coordinate Geometry

- a. Identify rational and irrational numbers
- b. Use the Pythagorean Theorem and its converse to solve right triangles

(reference Chapter 9)

(State Goals: 8)

7. Rational Functions

- a. Simplify radicals and perform addition, subtraction, multiplication and division of radical expressions
- b. Add, subtract, multiply and divide algebraic functions

(reference Chapter 10)

(State Goals: 6D, 8)

8. Probability

- a. Determine theoretical and experimental probability
- b. Apply the fundamental principle of counting

(reference Chapter 4)

(State Goals: 10)