

**ALGEBRA I, PART II**  
**GRADE LEVELS 8-10**

#	Lesson	Lesson Content
1	Solving by Graphing	Determining if an ordered pair is a solution of a system of linear equations; finding solutions of linear systems of questions by graphing
2	Solving by Substitution	Solving systems of equations by substituting for a variable
3	Addition & Subtraction	Solving systems of linear equations by using addition and subtraction; eliminating variables by adding and subtracting
4	Multiplication & Addition	Solving linear systems of equations by first multiplying one or both equations by a constant and then using the addition method
5	Using Two Variables	Solving word problems related to real life situations using a variety of methods, writing let statements
6	Motion Problems	Solving problems involving uniform motion formula for motion
7	Coin & Digit	Solving linear systems of equations involving digits and coins
8	Rational Expressions 1	Review of definition of rational expressions simplifying rational expressions
9	Using $-1$ as a Factor	Factoring negative one from a polynomial in order to simplify rational expressions
10	Rational Expressions 2	Multiplying rational expressions to simplify products
11	Rational Expressions 3	Dividing two rational expressions and simplifying the answer
12	Rational Expressions 4	Addition and Subtraction of rational expressions with like denominators
13	Rational Expressions 5	Identifying the least common multiple of expressions; adding and subtraction rational expressions with unlike denominators by converting rational expressions to equivalent rational expressions with common denominators
14	Dividing Polynomials	Dividing one polynomial by another using long division introduction to synthetic division
15	Complex Rationals	Identifying complex rational expressions and simplifying them
16	Rational Equations 1	Identify and solve rational equations skills necessary for solving rational equations
17	Rational Equations 2	Solving word problems by using rational equations
18	Mixture Problems	Solving word problems with rational equations which relate to mixtures
19	Work Problems	Solving word problems relating to work being done by two or more individuals working separately and together; using rational equations
20	Ratio & Proportion	Solving problems that require the use of ratios and proportions
21	Investment Problems	Solving problems dealing with investments; solving for future worth of present amounts
22	Graphing Inequalities	Graphing inequalities on a number line
23	Solving Inequalities	Solving inequalities using the addition method solving inequalities by adding and subtracting from both sides of the inequality
24	Using Inequalities	Solving inequalities by using the multiplication method multiplying and/or dividing both sides of the inequality by a constant
25	Problem Solving	Using inequalities in word problems to solve problems
26	Intersections & Unions	Review of terminology of sets, unions, and intersections, identifying sets finding union and intersection of sets
27	Compound Inequalities	Reading, writing, and solving compound inequalities
28	Equations/Absolute Value	Solving equations that contain absolute values
29	Linear Inequalities 1	Inequalities and the coordinate plane and solving for absolute value
30	Linear Inequalities 2	Graphing inequalities that contain two variables on the coordinate plane
31	Linear Inequalities 3	Graphing systems of linear inequalities on the coordinate plane using shading to identify requirements of both inequalities
32	Square Root &	Finding square roots of perfect squares determining if numbers are rational

	Irrationals	or irrational; using calculators to give approximations for irrational numbers
33	Radical Expressions 1	Simplifying radical expressions
34	Radical Expressions 2	Multiplying two or more radical expressions
35	Radical Expressions 3	Dividing radical expressions by another radical expression rationalizing the denominator
36	Radical Expressions 4	Adding and subtracting radical expressions
37	The Pythagorean Theorem 1	Introduction to the Pythagorean Theorem solving triangles using the Pythagorean Theorem
38	The Distance Formula	Finding the distance between any two points on the coordinate plane
39	The Pythagorean Theorem 2	Using the Pythagorean Theorem to solve problems
40	Radical Equations	Solving equations that contain a radical term
41	Relations & Functions	Definition of relation; determining domain and range of relations; definition of function; determining if a relation is a function; finding the value of functions
42	Function Graphs	Graphing functions; recognizing the graph of functions; learning to use function notation
43	Quadratic Functions	Graphing quadratic functions; using vertex and axis of symmetry of the T-table
44	Direct Variation	Giving equations of direct variation and solving problems involving direct variation
45	Inverse Variation	Finding equations of inverse variation; solving problems involving inverse variation
46	Variations	Problem solving involving joint and combined variation
47	Quadratic Equations	Solving quadratic equations in three different forms involving exponents
48	Completing the Square	Solving quadratic equations by completing the square
49	The Quadratic Formula 1	Defining the quadratic formula; using the quadratic formula to solve quadratic equations
50	The Discriminant	Identifying and evaluating the discriminant of a quadratic equation; using the discriminant to determine the number of solutions to an equation
51	The Quadratic Formula 2	Solving word problems by utilizing the quadratic formula