



**Dr. Bryan Long**

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**Below is a list of topics for a general Algebra I Class. Dr. Long can teach any of these topics and/or provide homework help. Dr. Long believes all math is a skill that needs consistent practice to master.**

## **Algebra I Topics:**

### **1. Foundations of Algebra:**

- Understanding real numbers
- Properties of real numbers (commutative, associative, distributive)
- Order of operations
- Evaluating algebraic expressions
- Translating verbal expressions into algebraic expressions and vice versa

### **2. Solving Equations and Inequalities:**

- Solving one-step equations
- Solving multi-step equations
- Solving equations with variables on both sides
- Solving equations involving absolute value
- Solving and graphing inequalities
- Compound inequalities

### **3. Linear Functions:**

- Understanding and graphing linear equations
- Slope of a line
- Slope-intercept form
- Point-slope form
- Writing equations of lines given various information (slope and a point, two points, etc.)
- Parallel and perpendicular lines

### **4. Systems of Equations and Inequalities:**

- Solving systems of linear equations graphically
- Solving systems of linear equations by substitution
- Solving systems of linear equations by elimination
- Applications of systems of equations
- Solving systems of linear inequalities

### **5. Exponents and Exponential Functions:**

- Properties of exponents
- Simplifying expressions with exponents

- Scientific notation
- Exponential growth and decay
- Graphing exponential functions

**6. Quadratic Functions and Equations:**

- Graphing quadratic functions
- Solving quadratic equations by factoring
- Solving quadratic equations by using the quadratic formula
- Completing the square
- Applications of quadratic equations

**7. Polynomials and Factoring:**

- Operations with polynomials (addition, subtraction, multiplication)
- Factoring polynomials (GCF, difference of squares, trinomials, grouping)
- Solving polynomial equations

**8. Rational Expressions and Equations:**

- Simplifying rational expressions
- Multiplying and dividing rational expressions
- Adding and subtracting rational expressions
- Solving rational equations

**9. Radicals and Radical Functions:**

- Simplifying radicals
- Operations with radicals (addition, subtraction, multiplication, division)
- Solving radical equations
- Rational exponents

**10. Data Analysis and Probability:**

- Analyzing and interpreting data (mean, median, mode, range)
- Representing data (histograms, box plots, scatter plots)
- Probability concepts and calculations