



## Advanced Algebra Topics 7-9 Syllabus

### Course Goals

#### 1 Develop New Skills

Students develop their mathematical knowledge and abilities as they learn and practice new skills from their upcoming school year math course.

#### 2 Review Prior Skills

Students gain confidence in their mathematical abilities through practice and supportive feedback.

#### 3 Build Confidence

Students become more confident in their mathematics abilities as they learn and practice both old and new topics, while having fun.

#### 4 Make Connections

Students make connections between different mathematical topics, and between math and everyday situations that connect to the math they learn.

### Course Topics

#### 1 Functions

Students will identify the domain and range of a graphed function and on what intervals it is increasing and decreasing.

#### 2 Quadratic Equations

Students will solve quadratic equations by factoring, square roots, and the quadratic formula.

#### 3 Quadratic Functions

Students will graph quadratic functions in standard and vertex form. This topic also includes practical applications of quadratic functions.

#### 4 Polynomial Functions

Students will classify polynomials, identify their function end behavior, and find their zeros and the multiplicity of each zero.

#### 5 Exponents and Radical Expressions

Students will simplify, add, subtract, multiply, and divide radical expressions and use properties of exponents to simplify expressions.

#### 6 Rational Expressions

Students will simplify, add, subtract, multiply, and divide rational expressions.

#### 7 Series and Sequences

Students will identify arithmetic and geometric sequences, find their common difference or common ratio, compute terms in a sequence, and find the sums of arithmetic and geometric series.

### Course Schedule

## Day 1

### Introduction and Icebreaker

Students are introduced to the course and review the rules. Students also briefly get to know each other and the instructor.

### Diagnostic Test

Students take the diagnostic assessment.

### Daily Instruction & Practice

Students practice the class topics at their own pace.

## Day 2

### Daily Warm-Up

Students are introduced to a topic at the beginning of a lesson, or review a previous topic before beginning a new lesson.

### Daily Instruction & Practice

Students practice the class topics at their own pace.

### Daily Enrichment

Students engage in an activity to enrich their learning of each topic.

## Day 3

### Daily Warm-Up

Students are introduced to a topic at the beginning of a lesson, or review a previous topic before beginning a new lesson.

### Daily Instruction & Practice

Students practice the class topics at their own pace.

### Daily Enrichment

Students engage in an activity to enrich their learning of each topic.

## Day 4

### Daily Warm-Up

Students are introduced to a topic at the beginning of a lesson, or review a previous topic before beginning a new lesson.

### Daily Instruction & Practice

Students practice the class topics at their own pace.

### Daily Enrichment

Students engage in an activity to enrich their learning of each topic.

## Day 5

### Daily Warm-Up

Students are introduced to a topic at the beginning of a lesson, or review a previous topic before beginning a new lesson.

### Daily Instruction & Practice

Students practice the class topics at their own pace.

### Daily Enrichment

Students engage in an activity to enrich their learning of each topic.

## **Day 6**

### **Daily Warm-Up**

Students are introduced to a topic at the beginning of a lesson, or review a previous topic before beginning a new lesson.

### **Daily Instruction & Practice**

Students practice the class topics at their own pace.

### **Daily Enrichment**

Students engage in an activity to enrich their learning of each topic.

## **Day 7**

### **Daily Warm-Up**

Students are introduced to a topic at the beginning of a lesson, or review a previous topic before beginning a new lesson.

### **Daily Instruction & Practice**

Students practice the class topics at their own pace.

### **Daily Enrichment**

Students engage in an activity to enrich their learning of each topic.

## **Day 8**

### **Daily Warm-Up**

Students are introduced to a topic at the beginning of a lesson, or review a previous topic before beginning a new lesson.

### **Daily Instruction & Practice**

Students practice the class topics at their own pace.

### **Daily Enrichment**

Students engage in an activity to enrich their learning of each topic.

## **Day 9**

### **Daily Warm-Up**

Students are introduced to a topic at the beginning of a lesson, or review a previous topic before beginning a new lesson.

### **Daily Instruction & Practice**

Students practice the class topics at their own pace.

### **Daily Enrichment**

Students engage in an activity to enrich their learning of each topic.

## **Day 10**

### **Final Test**

Students take the post-assessment.

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