Accelerated Analytic Geometry B / Advanced Algebra
Extending the Number System

KEY STANDARDS ADDRESSED:

Extend the properties of exponents to rational exponents

MCC9-12.N.RN.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for notation for radicals in terms of rational exponents.
MCC9-12.N.RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.
MCC9-12.N.RN.3 Explain why the sum or product of rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

Perform arithmetic operations with complex numbers
MCC9-12.N.CN.1 Know there is a complex number *i* such that $i^2 = -1$, and that every complex number has the form $a + bi$ with *a* and *b* real.
MCC9-12.N.CN.2 Use the relation $i^2 = -1$, and commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
MCC9-12.N.CN.3 Find the conjugate of a complex number; use conjugates to find quotients of complex numbers.

Wed	Aug 14	7.1	Syllabus and Classroom Rules Nth Roots and Rational Exponents	P 404	12 – 60 even
Thu Fri	Aug 15, 16	7.2	Properties of Rational Exponents	P 411	2 – 88 even
Mon	Aug 19		Pre-test Properties of Rational and Irrational Numbers		Activity Handout
Tue	Aug 20	1.1	Real Number and Number Operations Imaginary Numbers	P 8	33 – 50 all Venn Diagram
Wed	Aug 21	5.4	Complex Numbers Vocabulary Due	p. 277	38 – 70 even
Thu	Aug 22	Review	Review for Unit 1 Test		
Fri	Aug 23	TEST	Unit 1 Test Notebook Due Essential Questions Due		

Essential Questions- Answer essential questions in complete sentences and provide an example of each.

- **What are the properties of rational and irrational numbers?**
- **What are the seven properties of rational exponents?**
- **How are nth roots converted from radical notation to rational exponents and vice versa?**
- **How are nth roots evaluated using radical notation?**
- **How are properties of rational exponents used to evaluated expressions?**
- **How are properties of rational exponents used to simplify expressions?**
- **What are the properties of the real number system?**
- **What is a complex number?**
- **How is a conjugate of a complex number found?**
- **How do you find a quotient of a complex number?**

Vocabulary – Define and give an example of each

- **Natural Numbers**
- **Whole Numbers**
- **Integers**
- **Rational numbers**
- **Irrational Numbers**
- **Real Numbers**
- **Complex Numbers**
- **Conjugate**
- **Exponents**
- **Imaginary Numbers**
- **Radicals**
- **Properties of Real Numbers**

Essential Questions are due on unit test day along with a Notebook Check.