

Standards/Topics	Conceptual Understanding	Procedural Skill & Fluency	Application
8.EE.1	Properties of Exponents Lesson 1 <i>Pre-Assessment</i>	Properties of Exponents Lesson 1 <i>Pre-Assessment</i>	
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 a notation for radicals in terms of rational exponents. For example, we define $(5^{1/3})^3$ must equal 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.	Check Their Work Rational Expressions Lesson 1 <i>Formative</i>	Check Their Work Rational Expressions Lesson 1 <i>Formative</i>	
N.RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Check Their Work Rational Expressions Lesson 1 <i>Formative</i>	Check Their Work Rational Expressions Lesson 1 <i>Formative</i>	
N.RN.3 Explain why the sum or product of two 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.	Operations on Rational and Irrational Numbers Lesson 2 <i>Formative/Summative</i>	Operations on Rational and Irrational Numbers Lesson 2 <i>Formative/Summative</i>	Applying Rational and Irrational Numbers Lesson 2 <i>Formative</i> <i>Answer Key & Rubric</i>

• A.SSE.1 Interpret expressions that represent a quantity in terms of its context. b) Interpret complicated expressions by viewing one or more of their parts as a single entity. <i>For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.</i>*	Operations on Polynomials <i>Formative/Summative Answer Key</i> Tiling Exit Slip Lesson <i>Formative Answer Key</i>	Take a Chance on Polynomials <i>Formative Observation Checklist</i>	
• A.SSE.2 Use the structure of an expression to identify ways to rewrite it. <i>For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.</i>		Operations on polynomials <i>Formative/Summative Answer Key</i> Take a Chance on Polynomials <i>Formative Observation Checklist</i>	
• A.APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.		Operations on Polynomials <i>Formative/Summative Answer Key</i>	
• N.CN.1 Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	Operations on Complex Numbers Lesson 4 <i>Formative Answer Key</i>	Operations on Complex Numbers Lesson 4 <i>Formative Answer Key</i>	
• N.CN.2 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	Operations on Complex Numbers Lesson 4 <i>Formative Answer Key</i>	Operations on Complex Numbers Lesson 4 <i>Formative Answer Key</i>	

Pre-Assessment(s)	Formative Assessment(s)	Summative Assessment(s)	Self-Assessment(s)
Properties of Exponents Pre-Assessment	Check Their Work Rational Expressions Operations on Rational and Irrational Numbers Operations on polynomials Take a Chance on Polynomials Operations on complex numbers	Operations on Rational and Irrational Numbers Operations on Polynomials Take a Chance on Polynomials	

Sample Lesson Sequence:

1. N.RN.1, 2 - Extend the properties of integer exponents to rational exponents, and show the relationship between rational exponents and radical expressions. (7 days)
 - a. Use exponent rules with rational exponents.
 - b. Switch between radical notation and rational exponent notation.
2. N.RN.3 - Compare and contrast operations involving irrational and rational numbers
 - a. Looking at rational and irrational numbers what happens when you add, subtract, multiply, and divide them in different combinations?
3. A.SSE.1, 2, A.APR.1 - Learn how properties and operations on polynomials are connected to those of real numbers. (5 to 6 Days)
 - a. Complete operations on polynomials (add, subtract, multiply).
 - b. Closed and not closed?
4. N.CN.1, 2 – Establish the Complex Numbers System, including real and non-real numbers.
 - a. Equations with a negative discriminate.
 - b. Complex numbers (real and non-real).
 - c. Complete operations with complex numbers.