**Unit 1.1 – Basic Properties of Exponents**

**Student Learning Targets:**

* I can understand the properties of exponents and how to use them.
* I can simplify algebraic terms with common base exponents.

**Properties of exponents**



An **exponent** refers to the number of times a number is multiplied by itself. For example, 2 to the 3rd (written like this: 23) means: **2 x 2 x 2 = 8**

Referring to 23, 2 is called the **Base**and 3 is called the **exponent.**

**Notes(1.1):**

**Assignment 1.1**

**Evaluate using the properties of exponents.**

**Simplify the expression.**

**Unit 1.2 – Use the Properties of Rational and Irrational Numbers**

**Student Learning Targets:**

* I can simplify radical expressions.
* I can add, subtract, and multiply real numbers
* I can explain why adding and multiplying two rational numbers results in a rational number.
* I can explain why adding a rational number to an irrational number results in an irrational number.
* I can explain why multiplying a nonzero number to an irrational number results in an irrational number.

A **rational number** can be written as a terminating or repeating decimal. **Irrational numbers** are non-terminating, non-repeating decimals.

**Notes:**

**Notes (Continued for 1.2):**

**Assignment 1.2**

**Simplify each radical expression.**

**Find each sum or difference.**

**Assignment 1.2 (Continued)**

**Find each product. Simplify each expression fully.**

Additional Problems: UM2: Page 248 #17-34; Page 254 #1-25

 MA2: Page 424 #32-40, 52-55

**Unit 1.3 – Extend the Properties of Exponents to Rational Exponents**

**Student Learning Targets:**

* I can convert radical notation to rational exponent notation, and vice-versa.
* I can extend the properties of integer exponents to rational exponents and use them to simplify expressions.

**Notes:**

**Notes (continued for 1.3):**

**Assignment 1.3**

**Write each expression in radical form.**

**Write each expression in exponential form.**

**Simplify each expression using the properties of rational exponents.**

Additional Problems: MA2: Page 417 #7-14, 21-32; Page 425 #3-22

**Unit 1.4 – Perform Arithmetic Operations with Complex Numbers**

**Student Learning Targets:**

* I can understand that the set of complex numbers includes the set of all real numbers and the set of imaginary numbers.
* I can express numbers in the form *a + bi.*
* I can add, subtract, and multiply complex numbers.

A **complex number** is any number in the form *a + bi.* The **imaginary unit *i*** is defined as . We commonly use the fact *i*2 = –1 to help us in simplifying expressions.

**Notes:**

**Notes (Continued for 1.4):**

**Assignment 1.4**

**Simplify.**

**Write the expression as a complex number in standard form.**

**Write the expression as a complex number in standard form.**

**Assignment 1.4 (Continued)**