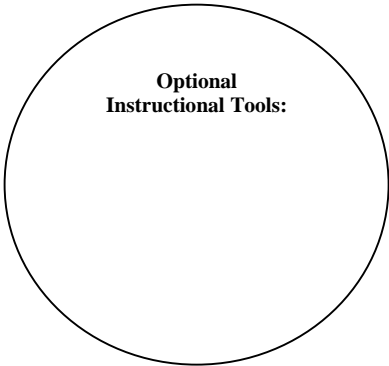


**Topic: Operations with Complex Numbers**

**Key Learning(s): The students will**  
 Represent and/or use imaginary numbers in equivalent form (square roots and exponents)



**Unit Essential Question(s):**  
 How do you represent and/or use imaginary numbers in equivalent form (square roots and exponents)?

<b>Concept:</b> A2.1.1.1.1 Simplify/write square roots in terms of $i$	<b>Concept:</b> A2.1.1.1.2 Simplify/evaluate expressions involving powers of $i$	<b>Concept:</b>
<b>Lesson Essential Questions:</b> How do you write square roots in terms of $i$ ?	<b>Lesson Essential Questions:</b> How do you evaluate expressions involving powers of $i$ ?	<b>Lesson Essential Questions:</b>
<b>Vocabulary:</b> Imaginary unit, square root property	<b>Vocabulary: expressions, i, evaluate</b>	<b>Vocabulary:</b>

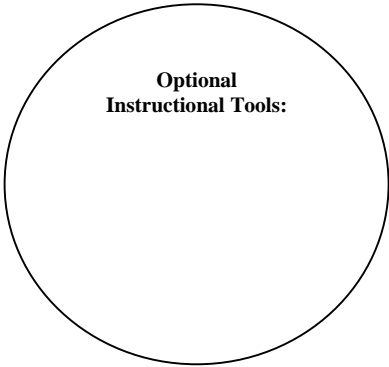
<b>Concept:</b>	<b>Concept:</b>	<b>Concept:</b>
<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>
<b>Vocabulary:</b>	<b>Vocabulary:</b>	<b>Vocabulary:</b>

**Attached Document(s):**

**Additional Info:**

**Topic: Operations with Complex Numbers**

**Key Learning(s): The students will**  
 Apply the order of operations in computation and in problem-solving situations.



**Unit Essential Question(s):**  
 How do you apply the order of operations in computation and in problem-solving situations?

<b>Concept:</b> A2.1.1.2.1 Add and subtract complex numbers	<b>Concept:</b> A2.1.1.2.2 Multiply and divide complex numbers	<b>Concept:</b>
<b>Lesson Essential Questions:</b> How do you add and subtract complex numbers?	<b>Lesson Essential Questions:</b> How do you multiply and divide complex numbers?	<b>Lesson Essential Questions:</b>
<b>Vocabulary:</b> Complex number	<b>Vocabulary:</b> Complex conjugates	<b>Vocabulary:</b>

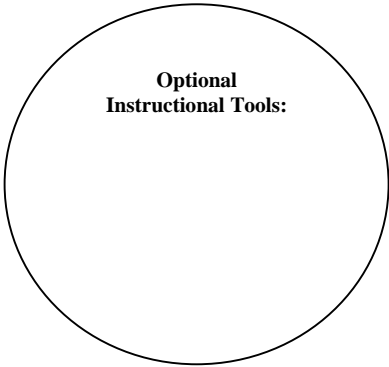
<b>Concept:</b>	<b>Concept:</b>	<b>Concept:</b>
<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>
<b>Vocabulary:</b>	<b>Vocabulary:</b>	<b>Vocabulary:</b>

**Attached Document(s):**

**Additional Info:**

**Topic: Non-Linear Expressions**

**Key Learning(s): The students will**  
 Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems



**Unit Essential Question(s):**  
 How do you use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems?

<p><b>Concept:</b>                  A2.1.2.1.1 Use exponential expressions to represent rational numbers.</p>	<p><b>Concept:</b>                  A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots (may contain all types of real numbers—exponents should not exceed power of 10).</p>	<p><b>Concept:</b>                  A2.1.2.1.3 Simplify/evaluate expressions involving multiplying with exponents (e.g., <math>x^6 \cdot x^7 = x^{13}</math>), powers of powers (e.g., <math>(x^6)^7 = x^{42}</math>) and powers of products (e.g., <math>(2x^2)^3 = 8x^6</math>).                  Note: Limit to rational exponents.</p>
<p><b>Lesson Essential Questions:</b>                  How do you use exponential expressions to represent rational numbers?</p>	<p><b>Lesson Essential Questions:</b>                  How do you simplify/evaluate expressions involving positive and negative exponents and/or roots?</p>	<p><b>Lesson Essential Questions:</b>                  How do you simplify/evaluate expressions involving multiplying with exponents (e.g., <math>x^6 \cdot x^7 = x^{13}</math>), powers of powers (e.g., <math>(x^6)^7 = x^{42}</math>) and powers of products (e.g., <math>(2x^2)^3 = 8x^6</math>)?</p>
<p><b>Vocabulary:</b>                  Simplify, scientific notation</p>	<p><b>Vocabulary:</b> simplify, evaluate, roots</p>	<p><b>Vocabulary:</b> simplify, evaluate</p>

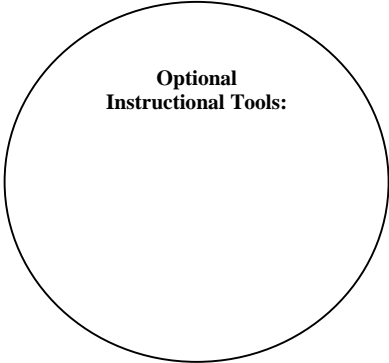
<p><b>Concept:</b>                  A2.1.2.1.4 Simplify or evaluate expressions involving logarithms and exponents (e.g., <math>\log_2 8 = 3</math> or <math>\log_4 2 = 1/2</math>).</p>	<p><b>Concept:</b></p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b>                  How do you simplify or evaluate expressions involving logarithms and exponents (e.g., <math>\log_2 8 = 3</math> or <math>\log_4 2 = 1/2</math>)?</p>	<p><b>Lesson Essential Questions:</b></p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b>                  Logarithm, logarithmic function, logarithmic equation</p>	<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>

**Attached Document(s):**

**Additional Info:**

**Topic: Non-Linear Expressions**

**Key Learning(s): The students will**  
Simplify expressions involving polynomials.



**Unit Essential Question(s):**  
How do you simplify expressions involving polynomials?

<p><b>Concept:</b> A2.1.2.2.1 Factor algebraic expressions, including difference of squares and trinomials. Note: Trinomials limited to the form <math>ax^2+bx+c</math> where <math>a</math> is not equal to 0.</p>	<p><b>Concept:</b> A2.1.2.2.2 Simplify rational algebraic expressions.</p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b> How do you factor algebraic expressions, including difference of squares and trinomials?</p>	<p><b>Lesson Essential Questions:</b> How do you simplify rational algebraic expressions?</p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b> Quadratic form, trinomial, intercept form</p>	<p><b>Vocabulary:</b> Rational expressions</p>	<p><b>Vocabulary:</b></p>

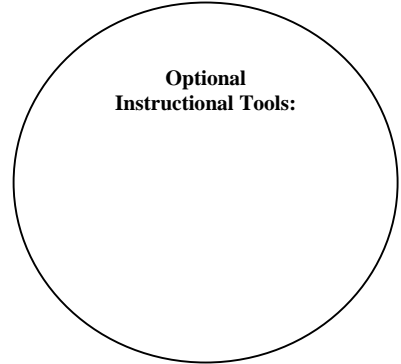
<p><b>Concept:</b></p>	<p><b>Concept:</b></p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b></p>	<p><b>Lesson Essential Questions:</b></p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>

**Attached Document(s):**

**Additional Info:**

**Topic: Non-Linear Equations**

**Key Learning(s): The students will**  
Write and/or solve nonlinear equations using various methods.



**Unit Essential Question(s):**  
How do you write and/or solve nonlinear equations using various methods.

<p><b>Concept:</b> A2.1.3.1.1 Write and/or solve quadratic equations (including factoring and using the Quadratic Formula).</p>	<p><b>Concept:</b> A2.1.3.1.2 Solve equations involving rational and/or radical expressions (e.g., <math>10/(x + 3) + 12/(x - 2) = 1</math> or <math>x^2 + 21x = 14</math>).</p>	<p><b>Concept:</b> A2.1.3.1.3 Write and/or solve a simple exponential or logarithmic equation (including common and natural logarithms).</p>
<p><b>Lesson Essential Questions:</b> How do you write and/or solve quadratic equations (including factoring and using the Quadratic Formula).</p>	<p><b>Lesson Essential Questions:</b> How do you solve equations involving rational and/or radical expressions?</p>	<p><b>Lesson Essential Questions:</b> How do you write and/or solve a simple exponential or logarithmic equation (including common and natural logarithms)?</p>
<p><b>Vocabulary:</b> Quadratic function, linear term, constant term, root, zero</p>	<p><b>Vocabulary:</b> Rational expression, radical expression</p>	<p><b>Vocabulary:</b> Logarithm, natural logarithm, common base, e</p>

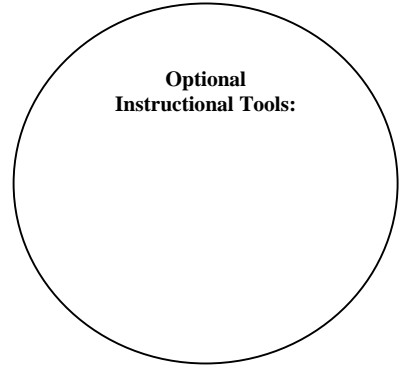
<p><b>Concept:</b> A2.1.3.1.4 Write, solve, and/or apply linear or exponential growth or decay (including problem situations).</p>	<p><b>Concept:</b></p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b> How do you write, solve, and/or apply linear or exponential growth or decay (including problem situations).</p>	<p><b>Lesson Essential Questions:</b></p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>

**Attached Document(s):**

**Additional Info:**

**Topic: Non-Linear Equations**

**Key Learning(s):** The students will Describe and/or determine change.



**Unit Essential Question(s):**  
How do you describe and/or determine change?

<p><b>Concept:</b> A2.1.3.2.1 Determine how a change in one variable relates to a change in a second variable (e.g., <math>y = 4/x</math>; if <math>x</math> doubles, what happens to <math>y</math>?).</p>	<p><b>Concept:</b> A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable (e.g., solve <math>d = rt</math> for <math>r</math>).</p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b> How do you Determine how a change in one variable relates to a change in a second variable?</p>	<p><b>Lesson Essential Questions:</b> How do you Use algebraic processes to solve a formula for a given variable?</p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b> Variable, rate of change,</p>	<p><b>Vocabulary:</b> algebraic</p>	<p><b>Vocabulary:</b></p>

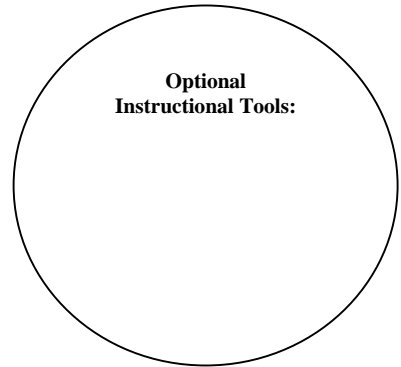
<p><b>Concept:</b></p>	<p><b>Concept:</b></p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b></p>	<p><b>Lesson Essential Questions:</b></p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>

**Attached Document(s):**

**Additional Info:**

**Topic: Patterns, Relations and Functions.**

**Key Learning(s):** The students will  
Analyze and/or use  
patterns or relations.



**Unit Essential Question(s):**  
How do you analyze and/or use  
patterns or relations?

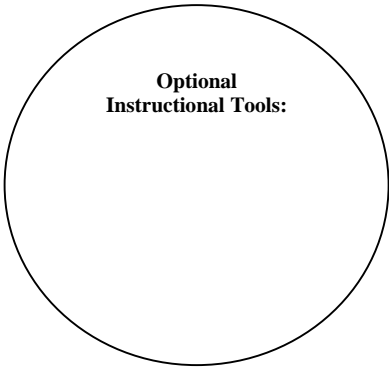
<p><b>Concept:</b> A2.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern with a rule algebraically and/or graphically.</p>	<p><b>Concept:</b> A2.2.1.1.2 Identify and/or extend a pattern as either an arithmetic or geometric sequence (e.g., given a geometric sequence, find the 20th term).</p>	<p><b>Concept:</b> A2.2.1.1.3 Determine the domain, range, or inverse of a relation.</p>
<p><b>Lesson Essential Questions:</b> How do you analyze a set of data for the existence of a pattern and represent the pattern with a rule algebraically and/or graphically?</p>	<p><b>Lesson Essential Questions:</b> How do you identify and/or extend a pattern as either an arithmetic or geometric sequence?</p>	<p><b>Lesson Essential Questions:</b> How do you determine the domain, range, or inverse of a relation?</p>
<p><b>Vocabulary:</b> Ordered pair,</p>	<p><b>Vocabulary:</b> Geometric sequence, common ratio, geometric means</p>	<p><b>Vocabulary:</b> Domain, range, inverse, mapping</p>

<p><b>Concept:</b> A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function (e.g., intervals of increase/decrease, intercepts, zeros, and asymptotes).</p>	<p><b>Concept:</b></p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b> How do you identify and/or determine the characteristics of an exponential, quadratic, or polynomial function</p>	<p><b>Lesson Essential Questions:</b></p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b> Intercepts, zeros, asymptotes</p>	<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>

**Additional Info:**

**Topic: Applications of Functions.**

**Key Learning(s):** The students will create, interpret, and/or use polynomial, exponential, and/or logarithmic functions and their equations, graphs, or tables.



**Unit Essential Question(s):**  
How do you create, interpret, and/or use polynomial, exponential, and/or logarithmic functions and their equations, graphs, or tables?

<p><b>Concept:</b> A2.2.2.1.1 Create, interpret, and/or use the equation, graph, or table of a polynomial function (including quadratics).</p>	<p><b>Concept:</b> A2.2.2.1.2 Create, interpret, and/or use the equation, graph, or table of an exponential or logarithmic function (including common and natural logarithms).</p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b> How do you create, interpret, and/or use the equation, graph, or table of a polynomial function?</p>	<p><b>Lesson Essential Questions:</b> How do you create, interpret, and/or use the equation, graph, or table of an exponential or logarithmic function?</p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b> Polynomial,</p>	<p><b>Vocabulary:</b> Logarithm, exponent</p>	<p><b>Vocabulary:</b></p>

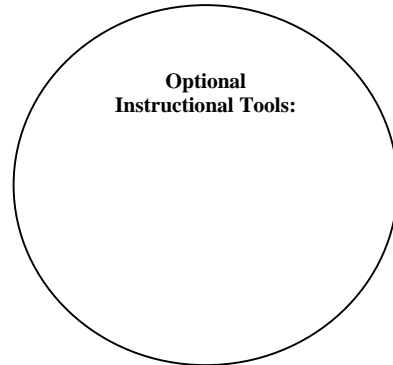
<p><b>Concept:</b> A2.2.2.1.3 Determine, use, and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential, or logarithmic function.</p>	<p><b>Concept:</b> A2.2.2.1.4 Translate a polynomial, exponential, or logarithmic function from one representation of a function to another (graph, table, and equation).</p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b> How do you determine, use, and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential, or logarithmic function?</p>	<p><b>Lesson Essential Questions:</b> How do you Translate a polynomial, exponential, or logarithmic function from one representation of a function to another?</p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b> Maximum, minimum,</p>	<p><b>Vocabulary:</b></p>	<p><b>Vocabulary:</b></p>

**Additional Info:**



**Topic: Applications of Functions.**

**Key Learning(s):** The students will  
Describe and/or determine families of functions.



**Unit Essential Question(s):**  
How do you describe and/or determine families of functions?

<b>Concept:</b> A2.2.2.2.1 Identify or describe the effect of changing parameters within a family of functions (e.g., $y = x^2$ and $y = x^2 + 3$ , or $y = x^2$ and $y = 3x^2$ ).	<b>Concept:</b>	<b>Concept:</b>
<b>Lesson Essential Questions:</b> How do you Identify or describe the effect of changing parameters within a family of functions?	<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>
<b>Vocabulary:</b> Slope intercept, y intercept, slope	<b>Vocabulary:</b>	<b>Vocabulary:</b>

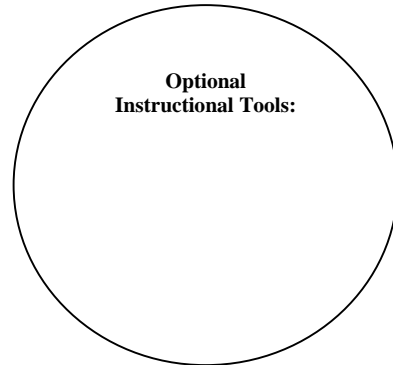
<b>Concept:</b>	<b>Concept:</b>	<b>Concept:</b>
<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>
<b>Vocabulary:</b>	<b>Vocabulary:</b>	<b>Vocabulary:</b>

**Attached Document(s):**

**Additional Info:**

**Topic: Data Analysis**

**Key Learning(s):** The students will analyze and/or interpret data on a scatter plot and/or use a scatter plot to make predictions.



**Unit Essential Question(s):**  
How do you analyze and/or interpret data on a scatter plot and/or use a scatter plot to make predictions.

<p><b>Concept:</b> A2.2.3.1.1 Draw, identify find, interpret, and/or write an equation for a regression model (lines and curves of best fit) for a scatter plot.</p>	<p><b>Concept:</b> A2.2.3.1.2 Make predictions using the equations or graphs of regression models (lines and curves of best fit) of scatter plots.</p>	<p><b>Concept:</b></p>
<p><b>Lesson Essential Questions:</b> How do you draw, identify find, interpret, and/or write an equation for a regression model (lines and curves of best fit) for a scatter plot?</p>	<p><b>Lesson Essential Questions:</b> How do you make predictions using the equations or graphs of regression models (lines and curves of best fit) of scatter plots?</p>	<p><b>Lesson Essential Questions:</b></p>
<p><b>Vocabulary:</b> Scatter plot, line of fit</p>	<p><b>Vocabulary:</b> substitution</p>	<p><b>Vocabulary:</b></p>

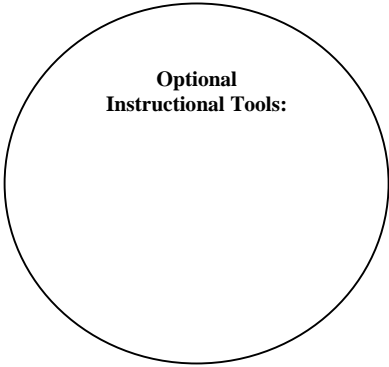
<b>Concept:</b>	<b>Concept:</b>	<b>Concept:</b>
<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>
<b>Vocabulary:</b>	<b>Vocabulary:</b>	<b>Vocabulary:</b>

**Attached Document(s):**

**Additional Info:**

**Topic: Data Analysis**

**Key Learning(s): The students will**  
 A2.2.3.2  
 Apply probability to practical situations.



**Unit Essential Question(s):**  
 How do you apply probability to practical Situations?

<p><b>Concept:</b> A2.2.3.2.1                  Use combinations, permutations, and the fundamental counting principle to solve problems involving probability.</p>	<p><b>Concept:</b> A2.2.3.2.2                  Use odds to find probability and/or use probability to find odds.</p>	<p><b>Concept:</b> A2.2.3.2.3                  Use probability for independent, dependent, or compound events to predict outcomes.</p>
<p><b>Lesson Essential Questions:</b>                  How do you use combinations, permutations, and the fundamental counting principle to solve problems involving probability?</p>	<p><b>Lesson Essential Questions:</b>                  How do you use odds to find probability and/or use probability to find odds?</p>	<p><b>Lesson Essential Questions:</b>                  How do you use probability for independent, dependent, or compound events to predict outcomes?</p>
<p><b>Vocabulary:</b>                  Combination, permutation, fundamental counting principal</p>	<p><b>Vocabulary:</b>                  Mean, median, mode, range</p>	<p><b>Vocabulary:</b></p>

<b>Concept:</b>	<b>Concept:</b>	<b>Concept:</b>
<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>	<b>Lesson Essential Questions:</b>
<b>Vocabulary:</b>	<b>Vocabulary:</b>	<b>Vocabulary:</b>

**Attached Document(s):**

**Additional Info:**