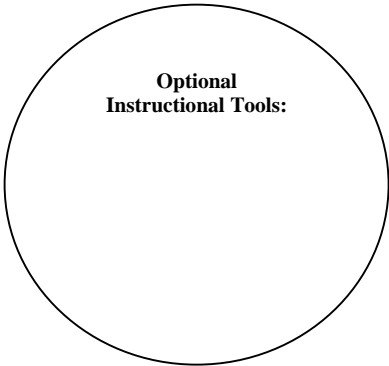


Topic: Operations with Complex Numbers

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)?

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

Concept:	Concept:	Concept:
Lesson Essential Questions:	Lesson Essential Questions:	Lesson Essential Questions:
Vocabulary:	Vocabulary:	Vocabulary:

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.

**Optional
Instructional Tools:**
Unit Essential Question(s):

How do you apply the order of operations in computation and in problem-solving situations?

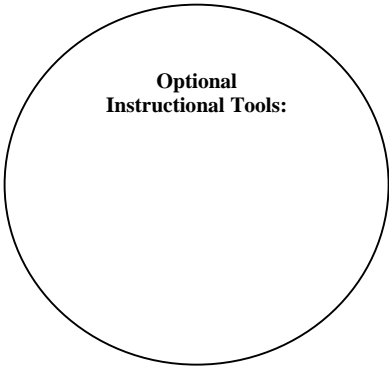
Concept: A2.1.1.2.1 Add and subtract complex numbers	Concept: A2.1.1.2.2 Multiply and divide complex numbers	Concept:
Lesson Essential Questions: How do you add and subtract complex numbers?	Lesson Essential Questions: How do you multiply and divide complex numbers?	Lesson Essential Questions:
Vocabulary: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

Concept:	Concept:	Concept:
Lesson Essential Questions:	Lesson Essential Questions:	Lesson Essential Questions:
Vocabulary:	Vocabulary:	Vocabulary:

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?

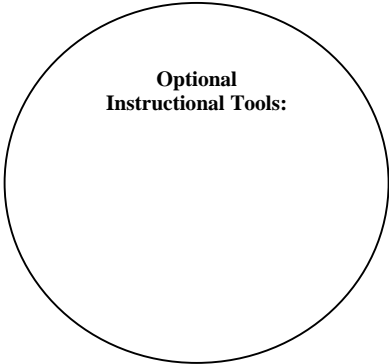
<p>Concept: A2.1.2.1.1 Use exponential expressions to represent rational numbers.</p>	<p>Concept: A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots (may contain all types of real numbers—exponents should not exceed power of 10).</p>	<p>Concept: A2.1.2.1.3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

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

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

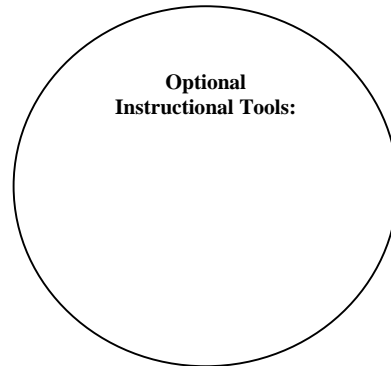
<p>Concept:</p>	<p>Concept:</p>	<p>Concept:</p>
<p>Lesson Essential Questions:</p>	<p>Lesson Essential Questions:</p>	<p>Lesson Essential Questions:</p>
<p>Vocabulary:</p>	<p>Vocabulary:</p>	<p>Vocabulary:</p>

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

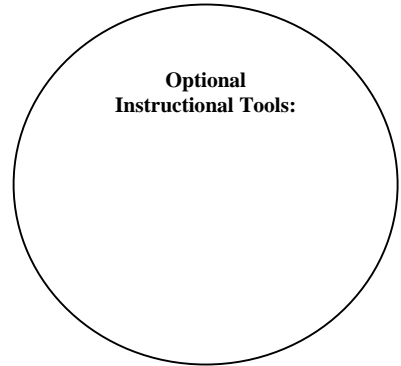
<p>Concept: A2.1.3.1.4 Write, solve, and/or apply linear or exponential growth or decay (including problem situations).</p>	<p>Concept:</p>	<p>Concept:</p>
<p>Lesson Essential Questions: How do you write, solve, and/or apply linear or exponential growth or decay (including problem situations).</p>	<p>Lesson Essential Questions:</p>	<p>Lesson Essential Questions:</p>
<p>Vocabulary:</p>	<p>Vocabulary:</p>	<p>Vocabulary:</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>Concept: A2.1.3.2.1 Determine how a change in one variable relates to a change in a second variable (e.g., $y = 4/x$; if x doubles, what happens to y?).</p>	<p>Concept: A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable (e.g., solve $d = rt$ for r).</p>	<p>Concept:</p>
<p>Lesson Essential Questions: How do you Determine how a change in one variable relates to a change in a second variable?</p>	<p>Lesson Essential Questions: How do you Use algebraic processes to solve a formula for a given variable?</p>	<p>Lesson Essential Questions:</p>
<p>Vocabulary: Variable, rate of change,</p>	<p>Vocabulary:</p>	<p>Vocabulary:</p>

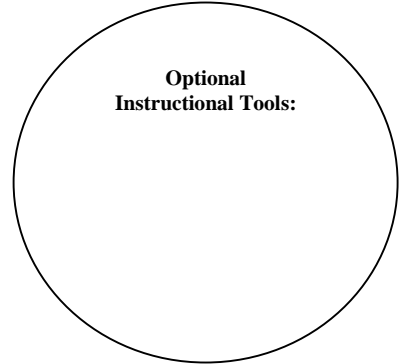
<p>Concept:</p>	<p>Concept:</p>	<p>Concept:</p>
<p>Lesson Essential Questions:</p>	<p>Lesson Essential Questions:</p>	<p>Lesson Essential Questions:</p>
<p>Vocabulary:</p>	<p>Vocabulary:</p>	<p>Vocabulary:</p>

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>Concept: 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>Concept: 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>Concept: A2.2.1.1.3 Determine the domain, range, or inverse of a relation.</p>
<p>Lesson Essential Questions: 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>Lesson Essential Questions: How do you identify and/or extend a pattern as either an arithmetic or geometric sequence?</p>	<p>Lesson Essential Questions: How do you determine the domain, range, or inverse of a relation?</p>
<p>Vocabulary: Ordered pair,</p>	<p>Vocabulary: Geometric sequence, common ratio, geometric means</p>	<p>Vocabulary: Domain, range, inverse, mapping</p>

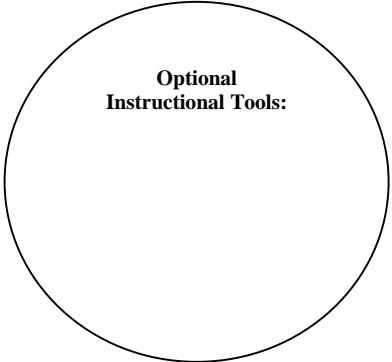
<p>Concept: A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function (e.g., intervals of increase/decrease, intercepts, zeros, and asymptotes).</p>	<p>Concept:</p>	<p>Concept:</p>
<p>Lesson Essential Questions: How do you identify and/or determine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

Attached Document(s):

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

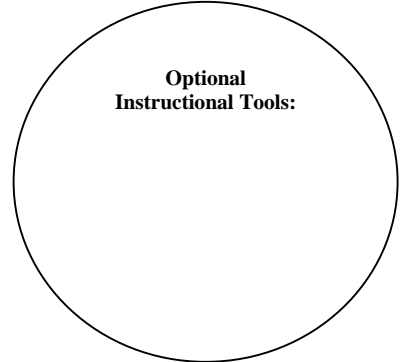
<p>Concept: A2.2.2.1.3 Determine, use, and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential, or logarithmic function.</p>	<p>Concept: A2.2.2.1.4 Translate a polynomial, exponential, or logarithmic function from one representation of a function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

Attached Document(s):

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?

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

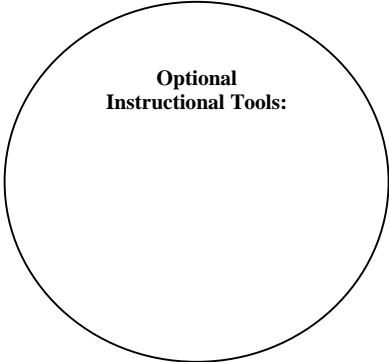
<p>Concept:</p>	<p>Concept:</p>	<p>Concept:</p>
<p>Lesson Essential Questions:</p>	<p>Lesson Essential Questions:</p>	<p>Lesson Essential Questions:</p>
<p>Vocabulary:</p>	<p>Vocabulary:</p>	<p>Vocabulary:</p>

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>Concept: 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>Concept: 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>Concept:</p>
<p>Lesson Essential Questions: 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>Lesson Essential Questions: How do you make predictions using the equations or graphs of regression models (lines and curves of best fit) of scatter plots?</p>	<p>Lesson Essential Questions:</p>
<p>Vocabulary: Scatter plot, line of fit</p>	<p>Vocabulary: substitution</p>	<p>Vocabulary:</p>

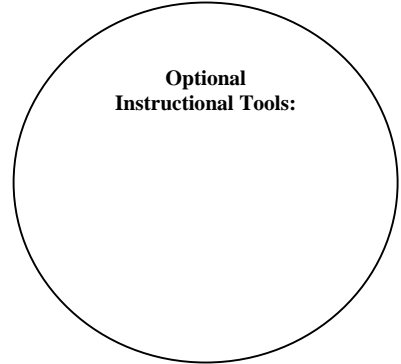
Concept:	Concept:	Concept:
Lesson Essential Questions:	Lesson Essential Questions:	Lesson Essential Questions:
Vocabulary:	Vocabulary:	Vocabulary:

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

Concept:	Concept:	Concept:
Lesson Essential Questions:	Lesson Essential Questions:	Lesson Essential Questions:
Vocabulary:	Vocabulary:	Vocabulary:

Attached Document(s):

Additional Info: