Paulsboro Schools

Curriculum

Algebra I B

Grade 9 - 12

June 2010

*** For adoption by all regular education programs as specified and for adoption or adaptation by all Special Education Programs in accordance with Board of Education Policy.**

Board Approved: Sept. 2012

PAULSBORO SCHOOL DISTRICT

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Paulsboro Schools

Mission

The mission of the Paulsboro School District is to provide each student the educational opportunities to assist in attaining their full potential in a democratic society. Our instructional programs will take place in a responsive, community based school system that fosters respect among all people. Our expectation is that all students will achieve the New Jersey Core Curriculum Content Standards (NJCCCS) at every grade level.

INTRODUCTION, PHILOSOPHY OF EDUCATION, AND EDUCATIONAL GOALS

Introduction/philosophy: MATHEMATICS

Paulsboro Schools are committed to providing all students with a quality education resulting in life-long learners who can succeed in a global society. As students begin their mathematics education in Paulsboro, classroom instruction will reflect the best thinking of the day. Children will engage in a wide variety of learning activities designed to develop their ability to reason and solve complex problems. Calculators, computers, manipulatives, technology, and the Internet will be used as tools to enhance learning and assist in problem solving. Group work, projects, literature, and interdisciplinary activities will make mathematics more meaningful and aid understanding. Classroom instruction will be designed to meet the learning needs of all children and will reflect a variety of learning styles.

Paulsboro Schools are committed to providing all students with the opportunity and the support necessary to learn significant mathematics with depth and understanding. This curriculum guide is designed to be a resource for staff members and to provide guidance in the planning, delivery, and assessment of mathematics instruction.

Educational Goals: MATHEMATICS

(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.

(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.

(3) Investigate, research, and synthesize various information from a variety of media sources.

New Jersey State Department of Education
Core Curriculum Content Standards

A note about Mathematics Standards and Cumulative Progress Indicators:

The New Jersey Core Curriculum Content Standards for **<Mathematics>** were revised in **2009**. The Cumulative Progress Indicators (CPI's) referenced in this curriculum guide refer to these new standards and may be found in the Curriculum folder on the district servers. A complete copy of the new Core Curriculum Content Standards for Mathematics may also be found at:

http://www.nj.gov/education/aps/cccs/

Algebra I B

Scope and Sequence / Curriculum MAP

<table>
<tr><th colspan="2">Quarter I</th></tr>
<tr><td>Big Idea: Review of Algebra IA
1. Order of Operations
2. Linear Equations
a. Slope, Midpoint, Distance
b. Equation of a Line – Slope Intercept, Point Slope, Standard Form
c. Systems of Linear Equations- Substitution, Elimination, Graphing
3. Proportions</td><td>Big Idea: Functions
1. Definition
2. Notation
3. Vertical Line Test
4. Graphs- Domain, Range
5. Exponentials</td></tr>
<tr><th colspan="2">Quarter II</th></tr>
<tr><td>Big Idea: Quadratic Functions
1. Definition
2. Equation
a. Vertex
b. Intercepts
c. Solutions
d. General Form
3. Factoring
4. Quadratic Formula</td><td></td></tr>
</table>

Quarter III	
Big Idea: Law of Exponents 1. Addition, Subtraction, Multiplication, Division, Negative, Zero **2.** Simplifying Exponent**s**	**Big Idea: Operations with Polynomials** 1.Simplifying – Addition, Subtraction, Multiplication, Division 2.Simplifying with Factoring
Big Idea: Irrational Numbers/ Radicals 1.Addition, Subtraction, Multiplication, Division with radicals 2. Simplifying Radicals	
Quarter IV	
Big Idea: Transformations 1.Linear Equations 2.Absolute Value Equations 3.Quadratic Equations 4.Exponential Equations	**Big Idea: Probability** 1.Combinations 2.Permutations 3.Cards, Dice, Geometric, Coins 4.Counting Theory 5. “Trees” 6. Simple Probability with and without replacement

Suggested days of Instruction	Curriculum Management System **Subject/Grade Level:** **Algebra IB /Grade 10-12**	**Big Idea: Review of Algebra IA** **Topic: Order of Operations, Linear Equations, Proportions** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 1: The student will be able to demonstrate proficiency of Algebra IA skills**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	. Solve one-step equations. (A-SSE 1a, A-APR 1, A-REI) Solve multi-step equations. (A-SSE 1a, A-REI 1-3) Solve equations with variables on both sides. (A-SSE 1a) Solve problems modeled by linear equations. (A-SSE 1a, A-CED 1,2) Solve decimal equations. (A-SSE 1a, A-REI 1-3)	**Essential Questions:** **Does order matter when we add, subtract, multiply or divide positive and negative numbers?** **How can you tell if the slope of a line is positive or negative?** **Where is the slope located in the equation of a line?** **What method would be most effective to solve a system of equations?** **Enduring Understandings:** **Know and identify rules in correct order when solving expressions and equations.** **Graph and identify the parts of a line.** **Solve system of equations**	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels (as noted in parentheses*).** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** Learning Activities/Assessment Models: **Find the slope of the following equation : 3x – 2y = -7.** **What method would I use to solve the following systems of linear equations:** **2x – 3y = 8** **3x +4y = -4**

Suggested days of Instruction	Curriculum Management System **Subject/Grade Level:** **Algebra IB /Grade 10-12**	**Big Idea: Review of Algebra IA** **Topic: Order of Operations, Linear Equations, Proportions** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 1: The student will be able to demonstrate proficiency of Algebra IA skills**	
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			• **Additional Resources:** • Discovering Algebra An Investigative Approach: Key Curriculum Press; 2007 • Quarterly Assessments • Compass Odyssey Learning Path • TI- 84 Calculators • Punchline Algebra 2nd edition • Algebra I An Integrated Approach: Heath; 1998 • Larson Algebra I: Holt McDougal; 2009

Suggested days of Instruction	**Curriculum Management System** **Subject/Grade Level:** **Algebra IB/ 10 – 12**	**Big Idea: Functions** **Topic: Definitions, Notations, Vertical Line Test, Graphs – Domain, Range** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 2: Students will be able to: write definitions, evaluate functions, check for a function using vertical line test, graph functions and identify domain and range, do the same for exponential functions.**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	F-IF.1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f*(*x*) denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation *y* = *f*(*x*). F-IF.2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context	**Essential Questions:** How can one identify a function? How do I determine the domain and range of a function? What does the graph of an absolute value look like? **Enduring Understandings:** Describe read and interpret graphs of real-world situations using the terms linear, nonlinear, increasing, decreasing, rate of change, continuous, and discrete. Learn how to determine whether a relationship is a function. Learn the absolute-value and squaring functions	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels (as noted in parentheses*).** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Learning Activities / Assessment Models:** Write the definition of a function? Evaluate f(x) = 3x -2 : for x = 1 For the given graph use the vertical line test to check for a function. For the given graph identify the domain and range. Graph f(x)=$\lvert x + 2 \rvert$, identify the vertex and the line of symmetry • **Additional Resources:** • Discovering Algebra An Investigative Approach: Key Curriculum Press; 2007

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Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Algebra IB/ 10 – 12**	**Big Idea: Quadratic Functions** **Topic: Definitions, Equation, Factoring, and Quadratic Formula** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 3: The student will be able to graph and analyze quadratic functions, identify the vertex, intercepts, and write the general form of a quadratic.**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	F-LE.2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). F-LE.1. Distinguish between situations that can be modeled with linear functions and with exponential functions.	**Essential Questions:** What is the quadratic formula? How do I factor an equation? What is the vertex and line of symmetry? **Enduring Understandings:** Compare features of parabolas to their quadratic equations Learn strategies for solving quadratic equations Learn how to combine and factor polynomials	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels (as noted in parentheses*).** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Learning Activities / Assessment Models:** Graph the function $y = x^2 + 3$ Identify the vertex and the line of symmetry Write the quadratic equation as $ax^2 + bx + c = 0$ • **Additional Resources:** • Discovering Algebra An Investigative Approach: Key Curriculum Press; 2007 • Quarterly Assessments • Compass Odyssey Learning Path • TI- 84 Calculators • Punchline Algebra 2nd edition • Algebra I An Integrated Approach: Heath; 1998 • Larson Algebra I: Holt McDougal; 2009

Suggested days of Instruction	Curriculum Management System **Subject/Grade Level:** **Algebra IB / 10 – 12**	**Big Idea: Law of Exponents** **Topic: simplifying exponents** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 4: The student will be able to rewrite an expression with exponents.**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	8.EE.1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$. A-SSE3c. Use the properties of exponents to transform expressions for exponential functions	**Essential Questions:** What is the value of anything to the 0 power? How do I write a number in scientific notation? How can I tell that the real-world model is an exponential equation? **Enduring Understandings:** Use properties of exponents to rewrite expressions Write numbers in scientific notation Model real-world data with exponential equations	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels (as noted in parentheses*).** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Learning Activities / Assessment Models:** Re-write 2^{-3} using a positive exponent Write 34,000,000,000 in scientific notation Write an equation to model the growth of an initial deposit of $250 in a savings account that pays 4.25% annual interest.

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Suggested days of Instruction	Curriculum Management System **Subject/Grade Level:** **Algebra IB / 10 – 12**	**Big Idea: Operations with Polynomials** **Topic: Simplifying Polynomials** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 5: The student will be able to add, subtract, multiply and divide polynomials; simplify by factoring.**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	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 A-APR.3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	**Essential Questions:** What is the rule for multiplying and dividing monomials? How do you factor a polynomial? **Enduring Understandings:** Use rules of exponents to evaluate monomials and polynomials. Evaluate polynomials by factoring.	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels (as noted in parentheses*).** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Learning Activities / Assessment Models:** **Simplify $2x^3y^4 \times 3x^4y$** **Simplify $\frac{10x^3y^2z}{5xyz}$** Evaluate $x^2 + 10x + 25$ • **Additional Resources:** • Discovering Algebra An Investigative Approach: Key Curriculum Press; 2007 • Quarterly Assessments • Compass Odyssey Learning Path • TI- 84 Calculators

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Algebra IB / 10 – 12**	**Big Idea: Operations with Polynomials** **Topic: Simplifying Polynomials** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 5: The student will be able to add, subtract, multiply and divide polynomials; simplify by factoring.**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
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Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Algebra IB / 10 – 12**	**Big Idea: Irrational Numbers/Radicals** **Topic: Simplifying Radicals and Irrational Numbers** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 6: The student will be able to add, subtract, multiply and divide with radicals; simplify radicals and irrational numbers.**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	8.NS.1. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	**Essential Questions:** How do you evaluate radicals using mathematical operations? How are property rules applied to simplify radicals? How are property rules applied to simplify irrational numbers? **Enduring Understandings:** Evaluate radicals using mathematical operations. Use property rules to simplify radicals. Use property rules to simplify irrational numbers.	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels (as noted in parentheses*).** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Learning Activities / Assessment Models:** **Evaluate $\sqrt{3} + \sqrt{3} = 2\sqrt{3}$** Evaluate $\sqrt{4} * \sqrt{5} = \sqrt{20}$ Simplify $\sqrt{12} = \sqrt{4 * 3} = -/+2\sqrt{3}$

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Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Algebra IB / 10 – 12**	**Big Idea: Transformations** **Topic: Linear, Absolute Value, Quadratic, and Exponential Equations** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 7: The student will be able to describe transformations of linear, absolute, quadratic, and exponential equations**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	F-LE.1. Distinguish between situations that can be modeled with linear functions and with exponential functions.	**Essential Questions:** How does a graph change when a number is added to the original equation? How do you compare the graphs and describe the changes? **Enduring Understandings:** Learn to change or transform graphs by moving, flipping, shrinking or stretching Write a new equation to describe the changed or transformed graph Model real-world data with equations of transformations	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels (as noted in parentheses*).** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Learning Activities / Assessment Models:** Graph the following equations on the same axis and describe the changes. y= x and y= x-1 Show a classmate how you can transform a single parent function into a whole family of functions. Explain how you can write a function for a graph by identifying the transformations.

Suggested days of Instruction	Curriculum Management System **Subject/Grade Level:** **Algebra IB / 10 – 12**	**Big Idea: Transformations** **Topic: Linear, Absolute Value, Quadratic, and Exponential Equations** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 7: The student will be able to describe transformations of linear, absolute, quadratic, and exponential equations**	
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Suggested days of Instruction	Curriculum Management System **Subject/Grade Level:** **Algebra IB / 10 – 12**	**Big Idea: Probability** **Topic: Combinations, Permutations, Cards/Dice/Geometric/Coins, Counting Theory, "Trees", Simple Probability with and without replacement** **Overarching Goals:** **(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.** **(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.** **(3) Investigate, research, and synthesize various information from a variety of media sources.** **Goal 8: The student will be able to determine the expected value of a random event.**	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Enduring Understandings, Sample Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	S-CP.2. Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent. S-CP.9. Use permutations and combinations to compute probabilities of compound events and solve problems.	**Essential Questions:** What is the difference between permutations and combinations? When do I use the counting theory? How do replacements affect my end result? **Enduring Understandings:** Learn about randomness and the definitions of probability Create and interpret relative frequency graphs Learn methods of calculating probabilities	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels (as noted in parentheses*).** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Learning Activities / Assessment Models:** **What is the theoretical probability of rolling a 6?** **Given 4 shirts and 3 pairs of pants, how many outfits can be created?** **How many different ways can president and vice president be selected from a group of 20 kids?**

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<tr><td colspan="2">Topic: Combinations, Permutations, Cards/Dice/Geometric/Coins, Counting Theory, “Trees”, Simple Probability with and without replacement</td></tr>
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(1) Communicate mathematical ideas in clear, concise, organized language that varies in content, format and form for different audiences and purposes.
(2) Comprehend, understand, analyze, evaluate, critique, solve, and respond to a variety of real-life, meaningful problems.
(3) Investigate, research, and synthesize various information from a variety of media sources.</td></tr>
<tr><td colspan="2"><u>Goal 8:</u> The student will be able to determine the expected value of a random event.</td></tr>
<tr><td>Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's)
The student will be able to:</td><td>Essential Questions, Enduring Understandings,
Sample Conceptual Understandings</td><td>Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model</td></tr>
<tr><td></td><td></td><td></td><td><u>Additional Resources:</u>
<u>Discovering Algebra An Investigative Approach</u>: Key Curriculum Press; 2007
Quarterly Assessments
Compass Odyssey Learning Path
TI- 84 Calculators
<u>Punchline Algebra</u> 2nd edition
<u>Algebra I An Integrated Approach</u>: Heath; 1998
<u>Larson Algebra I</u>: Holt McDougal; 2009</td></tr>
</table>

Algebra IB / 10 – 12

COURSE BENCHMARKS

1. The student will be able to demonstrate proficiency of Algebra IA skills.
2. Students will be able to: write definitions, evaluate functions, check for a function using vertical line test, graph functions and identify domain and range, do the same for exponential functions.
3. The student will be able to graph and analyze quadratic functions, identify the vertex, intercepts, and write the general form of a quadratic.
4. The student will be able to rewrite an expression with exponents.
5. The student will be able to add, subtract, multiply and divide polynomials; simplify by factoring.
6. The student will be able to add, subtract, multiply and divide with radicals; simplify radicals and irrational numbers.
7. The student will be able to describe transformations of linear, absolute, quadratic, and exponential equations.
8. The student will be able to determine the expected value of a random event.