

<b>COURSE: Applied Algebra II</b>	<b>GRADE(S): 11</b>
<b>UNIT 1: Real Numbers and Equations</b>	<b>TIME FRAME: 13 Days</b>

**NATIONAL STANDARDS: NCTM Standards**

**1. NUMBER AND OPERATIONS**

- A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems
- B. Understand meanings of operations and how they relate to one another
- C. Compute fluently and make reasonable estimates

**2. ALGEBRA**

- A. Understand patterns, relations, and functions
- B. Represent and analyze mathematical situations and structures using algebraic symbols
- C. Use mathematical models to represent and understand quantitative relationships

**6. PROBLEM SOLVING**

- A. Build new mathematical knowledge through problem solving
- B. Solve problems that arise in mathematics and in other contexts
- C. Apply and adapt a variety of appropriate strategies to solve problems
- D. Monitor and reflect on the process of mathematical problem solving

**7. REASONING and PROOF**

- B. Make and investigate mathematical conjectures
- D. Select and use various types of reasoning and methods of proof

**8. COMMUNICATION**

- A. Organize and consolidate their mathematical thinking through communication
- B. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others
- C. Analyze and evaluate the mathematical thinking and strategies of others
- D. Use the language of mathematics to express mathematical ideas precisely

**9. CONNECTIONS**

- A. Recognize and use connections among mathematical ideas
- B. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
- C. Recognize and apply mathematics in contexts outside of mathematics

**10. REPRESENTATION**

- A. Create and use representations to organize, record, and communicate mathematical ideas
- B. Select, apply, and translate among mathematical representations to solve problems
- C. Use representations to model and interpret physical, social, and mathematical phenomena

**PA MATH ASSESSMENT ANCHORS:**

- M11.A.1.3.1** Locate/identify irrational numbers at the approximate location on a number line.
- M11.A.1.3.2** Compare and/or order any real numbers (rational and irrational may be mixed).
- M11.A.2.2.1** Simplify/evaluate expressions involving positive and negative exponents, roots and/or absolute value (may contain all types of real numbers - exponents should not exceed power of 10).
- M11.A.3.1.1** Simplify/evaluate expressions using the order of operations to solve problems (any rational numbers may be used).
- M11.D.2.1.1** Solve compound inequalities and/or graph their solution sets on a number line (may include absolute value inequalities).

**UNIT OBJECTIVES:**

1. Graph and order real numbers.
2. Identify and use properties of real numbers.
3. Evaluate and simplify algebraic expressions.
4. Write and solve equations.
5. Solve and graph simple and compound inequalities on a number line.
6. Solve absolute value equations and inequalities.
7. Find experimental and theoretical probabilities.

**M11.D.2.1.3** Write, solve and/or apply a linear equation (including problem situations).

**M11.E.3.1.1** Find probabilities for independent, dependent or compound events and represent as a fraction, decimal or percent).

**ACTIVITIES:**

Teacher directed differentiated instructional projects and activities are ongoing and based on student need.

**Prentice Hall Algebra 2, 2007:**

All-in-One Student Workbook  
Skill and Concept Review Masters  
Grab & Go Chapter Support Files

**Additional Activities:**

1. Mathematical Definitions: Algebra
2. Please Excuse My Dear Aunt Sally
3. Contig
4. Review 3
5. Fun with Calendars
6. What Did Bonzo Say?
7. What Were the Headlines?
8. Solving Linear Equations
9. Open-ended: Absolute Value Equations
10. Activity 1: Happy Birthday
11. Activity 2: Theoretical and Experimental
12. Probability
13. Activity 3: Sticky-Dot Number Cubes
14. Practice 2: Theoretical and Experimental Probability
15. Practice 2.6

**ASSESSMENTS:**

- Observation and questioning
- Presentations and discussions
- Projects and investigations
- Mathematical Writing
- Homework
- Quizzes
- Tests

**REMEDIATION:**

- Re-teaching Worksheets
- Practice 2.3
- Practice 2.4
- Special Delivery
- Practice: Theoretical Probability

**Prentice Hall Algebra 2, 2007:**

Hands-On Activities  
Skill and Concept Review Masters  
Online Video Tutor  
MindPoint Quiz Show CD-ROM: End-of-Chapter reviews

**ENRICHMENT:**

- Word Ladders
- Funny Money
- Why Did Gonzo Walk Around?

**Prentice Hall Math, 2007:**

Online Active Math: Built-in interactive explorations  
MindPoint Quiz Show CD-ROM  
Enrichment Masters  
[PHSchool.com](http://PHSchool.com): Online support for Mathematics  
Web Codes within the textbook provide access to:

- Vocabulary Quizzes
- Chapter Tests
- Chapter Projects
- Math at Work

**RESOURCES:**

**Prentice Hall Algebra 2, 2007**

PLATO

Study Island

NetTrekker

United Streaming

**WEB SITES**

<http://regentsprep.org/>

[www.algebrahelp.com](http://www.algebrahelp.com)

[www.coolmath.com](http://www.coolmath.com)

[www.mathleague.com](http://www.mathleague.com)

[www.interactmath.com](http://www.interactmath.com)

<http://www.themathpage.com/aTrig/trigonometry.htm>

<b>COURSE: Applied Algebra II</b>	<b>GRADE(S): 11</b>
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<b>UNIT 2: Systems of Linear Equations</b>	<b>TIME FRAME: 11 Days</b>
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<p><b>NATIONAL STANDARDS: NCTM Standards</b></p> <p><b>1. NUMBER AND OPERATIONS</b></p> <ul style="list-style-type: none"> <li>A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems</li> <li>B. Understand meanings of operations and how they relate to one another</li> <li>C. Compute fluently and make reasonable estimates</li> </ul> <p><b>2. ALGEBRA</b></p> <ul style="list-style-type: none"> <li>A. Understand patterns, relations, and functions</li> <li>B. Represent and analyze mathematical situations and structures using algebraic symbols</li> <li>C. Use mathematical models to represent and understand quantitative relationships</li> <li>D. Analyze change in various contexts</li> </ul> <p><b>3. GEOMETRY</b></p> <ul style="list-style-type: none"> <li>B. Specify locations and describe spatial relationships using coordinate geometry and other representational systems</li> <li>D. Use visualization, spatial reasoning, and geometric modeling to solve problems</li> </ul> <p><b>4. MEASUREMENT</b></p> <ul style="list-style-type: none"> <li>B. Apply appropriate techniques, tools, and formulas to determine measurements</li> </ul> <p><b>6. PROBLEM SOLVING</b></p> <ul style="list-style-type: none"> <li>A. Build new mathematical knowledge through problem solving</li> <li>B. Solve problems that arise in mathematics and in other contexts</li> <li>C. Apply and adapt a variety of appropriate strategies to solve problems</li> <li>D. Monitor and reflect on the process of mathematical problem solving</li> </ul> <p><b>8. COMMUNICATION</b></p> <ul style="list-style-type: none"> <li>A. Organize and consolidate their mathematical thinking through communication</li> <li>B. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others</li> <li>C. Analyze and evaluate the mathematical thinking and strategies of others</li> <li>D. Use the language of mathematics to express mathematical ideas precisely</li> </ul> <p><b>9. CONNECTIONS</b></p> <ul style="list-style-type: none"> <li>A. Recognize and use connections among mathematical ideas</li> <li>B. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole</li> <li>C. Recognize and apply mathematics in contexts outside of mathematics</li> </ul> <p><b>10. REPRESENTATION</b></p> <ul style="list-style-type: none"> <li>A. Create and use representations to organize, record, and communicate mathematical ideas</li> <li>B. Select, apply, and translate among mathematical representations to solve problems</li> <li>C. Use representations to model and interpret physical, social, and mathematical phenomena</li> </ul>
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<p><b>PA MATH ASSESSMENT ANCHORS:</b></p> <p><b>M11.D.2.1.2</b> Identify or graph functions, linear equations or linear inequalities on a coordinate plane.</p> <p><b>M11.D.2.1.3</b> Write, solve and/or apply a linear equation (including problem situations).</p>	<p><b>UNIT OBJECTIVES:</b></p> <ol style="list-style-type: none"> <li>1. Solve a system of linear equations by graphing using problem solving situations.</li> <li>2. Solve a system by substitution and elimination using problem solving situations.</li> <li>3. Solve systems of linear inequalities using problem solving situations.</li> </ol>
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**ACTIVITIES:**

Teacher directed differentiated instructional projects and activities are ongoing and based on student need.

**Prentice Hall Algebra 2, 2007:**

All-in-One Student Workbook  
Skill and Concept Review Masters  
Grab & Go Chapter Support Files

**Additional Activities:**

1. Open-ended: Systems
2. Representing the Solution Process by Graphing
3. Solving Linear Systems by Graphing
4. Calling Long Distance
5. Solving Linear Systems by Substitution
6. Why Does the President...?
7. Wrong Number!
8. Solving Linear Systems by Linear Combinations
9. Did You Hear About ...?
10. What Kind of Shoes Does a Frog Wear?
11. An Arctic Freeze
12. The Mobius Strip
13. Radio Shack Beaters
14. High Step Sports Shoe
15. The Bookworm
16. Webs-R-Us
17. Packet of sample questions **ASSESSMENTS:**

- Observation and questioning
- Presentations and discussions
- Projects and investigations
- Escape From the Tomb
- Mathematical Writing
- Homework
- Quizzes
- Tests

**REMEDIATION:**

- Re-teaching Worksheets
- Mad Scientist
- Practice 8
- Wild Things

**Prentice Hall Algebra 2, 2007:**

Hands-On Activities  
Skill and Concept Review Masters  
Online Video Tutor  
MindPoint Quiz Show CD-ROM: End-of-Chapter reviews

**ENRICHMENT:**

- Intercept Courses
- Graphing Systems of Inequalities
- Enrichment Activity 8

**Prentice Hall Math, 2007:**

Online Active Math: Built-in interactive explorations  
MindPoint Quiz Show CD-ROM  
Enrichment Masters

[PHSchool.com](http://PHSchool.com): Online support for Mathematics

Web Codes within the textbook provide access to:

- Vocabulary Quizzes
- Chapter Tests
- Chapter Projects
- Math at Work

**RESOURCES:****Prentice Hall Algebra 2, 2007**

PLATO  
Study Island  
NetTrekker  
United Streaming

**WEB SITES**

<http://regentsprep.org/>

[www.algebrahelp.com](http://www.algebrahelp.com)

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[www.interactmath.com](http://www.interactmath.com)

**M11.D.2.1.4** Write and/or solve systems of 4. Use linear programming to solve real-world equations using graphing, problems.

systems to 2 equations).

substitution and/or elimination (limit



**NATIONAL STANDARDS: NCTM Standards**

**1. NUMBER AND OPERATIONS**

- A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems
- B. Understand meanings of operations and how they relate to one another
- C. Compute fluently and make reasonable estimates

**3. GEOMETRY**

- A. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
- D. Use visualization, spatial reasoning, and geometric modeling to solve problems

**4. MEASUREMENT**

- A. Understand measurable attributes of objects and the units, systems, and processes of measurement
- B. Apply appropriate techniques, tools, and formulas to determine measurements

**6. PROBLEM SOLVING**

- A. Build new mathematical knowledge through problem solving
- B. Solve problems that arise in mathematics and in other contexts
- C. Apply and adapt a variety of appropriate strategies to solve problems
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**8. COMMUNICATION**

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- B. Select, apply, and translate among mathematical representations to solve problems
- C. Use representations to model and interpret physical, social, and mathematical phenomena

**PA MATH ASSESSMENT ANCHORS:**

- M11.A.2.1.3** Identify and/or use proportional relationships in problem solving settings.
- M11.A.3.1.1** Simplify/evaluate expressions using the order of operations to solve problems (any rational numbers may be used).

**UNIT OBJECTIVES:**

- 1. Identify trigonometric functions.
- 2. Use trigonometry to find the lengths of sides of right triangles.
- 3. Use inverse trigonometric functions to find angle measures in right triangles.
- 4. Use indirect measurement to solve real world problems.

<p><b>M11.A.3.2.1</b> Use estimation to solve problems.</p> <p><b>M11.B.2.1.1</b> Measure and/or compare angles in degrees (up to 360°) (protractor must be provided or drawn).</p>	
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<p><b>ACTIVITIES:</b></p> <p>Teacher directed differentiated instructional projects and activities are ongoing and based on student need.</p> <p><b>Prentice Hall Algebra 2, 2007:</b>  All-in-One Student Workbook  Skill and Concept Review Masters  Grab &amp; Go Chapter Support Files</p> <p><b>Additional Activities:</b></p> <ol style="list-style-type: none"> <li>1. Similar Triangles and Trigonometric Ratios</li> <li>2. Some Mnemonics to Remember Your Trig Ratios</li> <li>3. The Origin of SOH CAH TOA Identified!</li> <li>4. What Do They Call the Big Grass Field?</li> <li>5. Trigonometry Ratios in Right Triangles</li> <li>6. Daffynition Decoder</li> <li>7. Trigonometry: Explore the operations of your calculator</li> <li>8. Trigonometry</li> <li>9. Angles of Elevation and Depression</li> <li>10. Leaning Tower of Pisa</li> <li>11. Squares and Square Roots/Minimum Cost</li> </ol>	<p><b>ASSESSMENTS:</b></p> <ul style="list-style-type: none"> <li>• Observation and questioning</li> <li>• Presentations and discussions</li> <li>• Projects and investigations</li> <li>• Trigonometry Project</li> <li>• Mathematical Writing</li> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> </ul> <p><b>REMEDIATION:</b></p> <ul style="list-style-type: none"> <li>• Re-teaching Worksheets</li> <li>• Trig Worksheet</li> </ul> <p><b>Prentice Hall Algebra 2, 2007:</b>  Hands-On Activities  Skill and Concept Review Masters  Online Video Tutor  MindPoint Quiz Show CD-ROM: End-of-Chapter reviews</p> <p><b>Enrichment:</b></p> <ul style="list-style-type: none"> <li>• Trig Twisters</li> <li>• What Did Mrs. Margarine Think?</li> </ul> <p><b>Prentice Hall Math, 2007:</b>  Online Active Math: Built-in interactive explorations  MindPoint Quiz Show CD-ROM  Enrichment Masters  <a href="http://PHSchool.com">PHSchool.com</a>: Online support for Mathematics  Web Codes within the textbook provide access to:</p> <ul style="list-style-type: none"> <li>• Vocabulary Quizzes</li> <li>• Chapter Tests</li> <li>• Chapter Projects</li> <li>• Math at Work</li> </ul> <p><b>RESOURCES:</b>  <b>Prentice Hall Algebra 2, 2007</b>  PLATO  Study Island  NetTrekker  United Streaming</p>
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**WEB SITES**

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[www.algebrahelp.com](http://www.algebrahelp.com)

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[www.mathleague.com](http://www.mathleague.com)

<http://www.schools.pinellas.k12.fl.us/educators/tec/Riley/index.html>

<http://www.themathpage.com/aTrig/trigonometry.htm>

<http://www.syvum.com/math/trigonometry.html>

<http://www.learnquebec.ca/en/content/curriculum/mst/mathematics/secondary/math426.html>

**NATIONAL STANDARDS: NCTM Standards**

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**2. ALGEBRA**

- A. Understand patterns, relations, and functions
- B. Represent and analyze mathematical situations and structures using algebraic symbols
- C. Use mathematical models to represent and understand quantitative relationships
- D. Analyze change in various contexts

**3. GEOMETRY**

- A. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
- B. Specify locations and describe spatial relationships using coordinate geometry and other representational systems
- C. Apply transformations and use symmetry to analyze mathematical situations
- D. Use visualization, spatial reasoning, and geometric modeling to solve problems

**5. MEASUREMENT**

- A. Understand measurable attributes of objects and the units, systems, and processes of measurement
- B. Apply appropriate techniques, tools, and formulas to determine measurement

**6. PROBLEM SOLVING**

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- C. Use representations to model and interpret physical, social, and mathematical phenomena

<p><b>PA MATH ASSESSMENT ANCHORS:</b></p> <p><b>M11.A.1.2.1</b> Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials.</p> <p><b>M11.D.2.1.5</b> Solve quadratic equations using factoring (integers only – not including completing the square or the Quadratic Formula).</p> <p><b>M11.D.2.2.1</b> Add, subtract and/or multiply polynomial expressions (express answers in simplest form – nothing larger than a binomial multiplied by a trinomial).</p> <p><b>M11.D.2.2.2</b> Factor algebraic expressions, including difference of squares and trinomials (trinomials limited to the form <math>ax^2+bx+c</math> where <math>a</math> is not equal to 0).</p> <p><b>M11.D.2.2.3</b> Simplify algebraic fractions.</p> <p><b>M11.D.4.1</b> Interpret and/or use linear, quadratic and/or exponential functions and their equations, graphs or tables.</p>	<p><b>UNIT OBJECTIVES:</b></p> <ol style="list-style-type: none"> <li>1. Identify the values A, B, and C of a quadratic function.</li> <li>2. Determine concavity, axis of symmetry, and vertex from a graph.</li> <li>3. Graph quadratic functions.</li> <li>4. Find maximum and minimum values of a quadratic function.</li> <li>5. Use the vertex form of a quadratic function.</li> <li>6. Factor quadratic expressions.</li> <li>7. Solve quadratic equations using a variety of methods including the use of a graphing calculator.</li> <li>8. Graph exponential functions and describe the behavior of the graph, the table, and the function rule. Use real life examples to show models of exponential functions.</li> <li>9. Add, subtract, and multiply complex numbers.</li> <li>10. Solve quadratic equations by using the quadratic formula.</li> <li>11. Determine types of solutions by using the discriminate.</li> </ol>
	<p><b>ACTIVITIES:</b></p> <p>Teacher directed differentiated instructional projects and activities are ongoing and based on student need.</p> <p><b>Prentice Hall Algebra 2, 2007:</b>  All-in-One Student Workbook  Skill and Concept Review Masters  Grab &amp; Go Chapter Support Files</p> <p><b>Additional Activities:</b></p> <ol style="list-style-type: none"> <li>1. Falling Objects</li> <li>2. Parabola!</li> <li>3. Graphing Quadratic Equations</li> <li>4. Toothpicks and Mathematical Models</li> <li>5. Quadratic Models</li> <li>6. Quadratic Functions: Problems and Models</li> <li>7. Open-ended: Quadratic Functions</li> <li>8. Transformations</li> <li>9. Transforming Graphs</li> </ol>

**ASSESSMENTS:**

- Observation and questioning
- Presentations and discussions
- Projects and investigations
- Mathematical Writing
- Homework
- Quizzes
- Concept Quiz – Quadratic Functions
- Tests

**REMEDIATION:**

- Re-teaching Worksheets
- Practice 31
- Worksheet 1: Factoring Quadratics

**Prentice Hall Algebra 2, 2007:**

Hands-On Activities

Skill and Concept Review Masters

Online Video Tutor

MindPoint Quiz Show CD-ROM: End-of-Chapter reviews

10. Transformation Creations on Families of Quadratics
11. Functions
12. Factoring  $x^2 + bx + c$
13. Algebra Tic-Tac-Times
14. Mass Confusion
15. Birds of a Feather
16. Quadratic Equations
17. Activity: Explore exponential functions on the graphing calculator by providing students with several different functions to graph and examine. Students should record data based on the graph, table, and function rule and discuss basic characteristics of the exponential functions. Extend activity as needed.
18. Activity: Compare and contrast linear, quadratic, and exponential functions using their function rules, tables, and graphs in the comparison.
19. One Last Time

**ENRICHMENT:**

- Cannonballs in Flight
- Mystery Mathematician

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**RESOURCES:**

**Prentice Hall Algebra 2, 2007**

PLATO

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<b>COURSE: Applied Algebra II</b>	<b>GRADE(S): 11</b>
<b>UNIT 5: Functions and Equations</b>	<b>TIME FRAME: 16 Days</b>

**NATIONAL STANDARDS: NCTM Standards**

**1. NUMBER AND OPERATIONS**

- A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems
- B. Understand meanings of operations and how they relate to one another
- C. Compute fluently and make reasonable estimates

**2. ALGEBRA**

- A. Understand patterns, relations, and functions
- B. Represent and analyze mathematical situations and structures using algebraic symbols
- C. Use mathematical models to represent and understand quantitative relationships
- D. Analyze change in various contexts

**3. GEOMETRY**

- B. Specify locations and describe spatial relationships using coordinate geometry and other representational systems
- D. Use visualization, spatial reasoning, and geometric modeling to solve problems

**4. MEASUREMENT**

- A. Understand measurable attributes of objects and the units, systems, and processes of measurement
- B. Apply appropriate techniques, tools, and formulas to determine measurements

**5. DATA ANALYSIS AND PROBABILITY**

- A. Formulate Questions that can be addressed with data and collect, organize, and display relevant data to answer them
- B. Select and use appropriate statistical methods to analyze data
- C. Develop and evaluate inferences and predictions that are based on data

**6. PROBLEM SOLVING**

- A. Build new mathematical knowledge through problem solving
- B. Solve problems that arise in mathematics and in other contexts
- C. Apply and adapt a variety of appropriate strategies to solve problems
- D. Monitor and reflect on the process of mathematical problem solving

**8. COMMUNICATION**

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- A. Create and use representations to organize, record, and communicate mathematical ideas
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- C. Use representations to model and interpret physical, social, and mathematical phenomena



<p><b>PA MATH ASSESSMENT ANCHORS:</b></p> <p><b>M11.C.3.1.2</b> Relate slope to perpendicularity and/or parallelism (limit to linear algebraic expressions; slope formula provided on the reference sheet).</p> <p><b>M11.D.1.1.2</b> Determine if a relation is a function given a set of points or a graph.</p> <p><b>M11.D.1.1.3</b> Identify the domain, range or inverse of a relation (may be presented as ordered pairs or a table)</p> <p><b>M11.D.2.1.2</b> Identify or graph functions, linear equations or linear inequalities on a coordinate plane.</p> <p><b>M11.D.3.2.2</b> Given the graph of the line, 2 points on the line, or the slope and a point on a line, write or identify the linear equation in point-slope, standard and/or slope-intercept form.</p> <p><b>M11.D.3.2.3</b> Compute the slope and/or y-intercept represented by a linear equation or graph.</p> <p><b>M11.D.4.1</b> Interpret and/or use linear, quadratic and/or exponential functions and their equations, graphs or tables.</p> <p><b>M11.E.4.2.1</b> Draw, find and/or write an equation for a line of best fit for a scatter plot.</p> <p><b>M11.E.4.2.2</b> Make predictions using the equations or graphs of best-fit lines of scatter plots.</p>	<p><b>UNIT OBJECTIVES:</b></p> <ol style="list-style-type: none"> <li>1. Graph relations and identify functions.</li> <li>2. Graph linear equations using real world situations.</li> <li>3. Write equations of lines using point-slope form and slope-intercept form.</li> <li>4. Write equations of parallel and perpendicular lines.</li> <li>5. Draw, find and/or write an equation for a line of best fit for a scatter plot by using algebraic methods or by using the graphing calculator.</li> <li>6. Graph linear inequalities.</li> </ol>
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<p><b>ACTIVITIES:</b></p> <p>Teacher directed differentiated instructional projects and activities are ongoing and based on student need.</p>
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<p><b>ASSESSMENTS:</b></p> <ul style="list-style-type: none"> <li>• Observation and questioning</li> <li>• Presentations and discussions</li> <li>• Projects and investigations</li> <li>• Getting Out of Line</li> <li>• Mathematical Writing</li> <li>• Homework</li> <li>• Quizzes</li> <li>• Concept Quiz - Transformations</li> <li>• Tests</li> </ul>
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**Prentice Hall Algebra 2, 2007:**

All-in-One Student Workbook  
Skill and Concept Review Masters  
Grab & Go Chapter Support Files

**Additional Activities:**

1. Take a Walk
2. Match the Graph
3. Plumbers and Helpers
4. Find the x- and y-intercepts of a line
5. Determine the slope of a line
6. Graphing Functions
7. Jumping Frogs
8. Graphing Linear Functions
9. Guided Discovery – Linear
10. Open-ended: Linear
11. To Be Linear or not to Be Linear
12. Hooke's Law
13. Arm Span Versus Height/International Shoe Sizes
14. Lanville Population
15. Connecting with a Good Deal
16. Buried Treasure
17. Will Women Ever Run As Fast As Men?
18. Guided Discovery – Absolute Value
19. Open-ended: Absolute Value
20. Open-ended: Transformations
21. Graph the Inequality – open ended question



<b>Course:</b>	<b>Applied Algebra II</b>	<b>Grade:</b>	11
<b>Unit 6:</b>	Matrices	<b>Time Frame:</b>	10 DAYS

**NATIONAL STANDARDS: NCTM Standards**

**1. NUMBER AND OPERATIONS**

- A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems
- B. Understand meanings of operations and how they relate to one another
- C. Compute fluently and make reasonable estimates

**2. ALGEBRA**

- A. Understand patterns, relations, and functions
- B. Represent and analyze mathematical situations and structures using algebraic symbols
- C. Use mathematical models to represent and understand quantitative relationships **6.**

**PROBLEM SOLVING**

- A. Build new mathematical knowledge through problem solving
- B. Solve problems that arise in mathematics and in other contexts
- C. Apply and adapt a variety of appropriate strategies to solve problems
- D. Monitor and reflect on the process of mathematical problem solving

**8. COMMUNICATION**

- A. Organize and consolidate their mathematical thinking through communication
- B. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others
- C. Analyze and evaluate the mathematical thinking and strategies of others
- D. Use the language of mathematics to express mathematical ideas precisely

**9. CONNECTIONS**

- A. Recognize and use connections among mathematical ideas
- B. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
- C. Recognize and apply mathematics in contexts outside of mathematics

**10. REPRESENTATION**

- A. Create and use representations to organize, record, and communicate mathematical ideas
- B. Select, apply, and translate among mathematical representations to solve problems
- C. Use representations to model and interpret physical, social, and mathematical phenomena

**PA MATH ASSESSMENT ANCHORS:**

**M11.A.3.1.1** Simplify/evaluate expressions using the order of operations to solve problems (any rational numbers may be used).

**UNIT OBJECTIVES:**

1. Organize data into matrices.
2. Add and subtract matrices.
3. Multiply matrices.
4. Solve matrix equations using inverse matrices.
5. Solve systems using augmented matrices.

**ACTIVITIES:**

Teacher directed differentiated instructional projects and activities are ongoing and based on student need.

**Prentice Hall Algebra 2, 2007:**

All-in-One Student Workbook  
Skill and Concept Review Masters  
Grab & Go Chapter Support Files

**Additional Activities:**

1. Practice 21
2. Practice 23
3. Practice 24

**ASSESSMENTS:**

- Observation and questioning
- Presentations and discussions
- Projects and investigations
- Mathematical Writing
- Homework
- Quizzes
- Tests

**REMEDIATION:**

- Re-teaching Worksheets
- Problem Set 6

**Prentice Hall Algebra 2, 2007:**

Hands-On Activities  
Skill and Concept Review Masters  
Online Video Tutor  
MindPoint Quiz Show CD-ROM: End-of-Chapter reviews

**ENRICHMENT:**

- Brain Teaser
- A Mathematical City
- Determinants, Products, and Inverses
- Enrichment Activity 22

**Prentice Hall Math, 2007:**

Online Active Math: Built-in interactive explorations  
MindPoint Quiz Show CD-ROM  
Enrichment Masters  
[PHSchool.com](http://PHSchool.com): Online support for Mathematics  
Web Codes within the textbook provide access to:

- Vocabulary Quizzes
- Chapter Tests
- Chapter Projects
- Math at Work

**RESOURCES:****Prentice Hall Algebra 2, 2007**

PLATO  
Study Island  
NetTrekker  
United Streaming

**WEB SITES**

<http://regentsprep.org/>  
[www.algebrahelp.com](http://www.algebrahelp.com)  
[www.coolmath.com](http://www.coolmath.com)  
[www.mathleague.com](http://www.mathleague.com)  
[www.interactmath.com](http://www.interactmath.com)

**NATIONAL STANDARDS: NCTM Standards**

**1. NUMBER AND OPERATIONS**

- A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems
- B. Understand meanings of operations and how they relate to one another
- C. Compute fluently and make reasonable estimates

**2. ALGEBRA**

- A. Understand patterns, relations, and functions
- B. Represent and analyze mathematical situations and structures using algebraic symbols
- C. Use mathematical models to represent and understand quantitative relationships
- D. Analyze change in various contexts

**5. DATA ANALYSIS**

- A. Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them
- B. Select and use appropriate statistical methods to analyze data
- C. Develop and evaluate inferences and predictions that are based on data
- D. Understand and apply basic concepts of probability

**6. PROBLEM SOLVING**

- A. Build new mathematical knowledge through problem solving
- B. Solve problems that arise in mathematics and in other contexts
- C. Apply and adapt a variety of appropriate strategies to solve problems
- D. Monitor and reflect on the process of mathematical problem solving

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- B. Select, apply, and translate among mathematical representations to solve problems
- C. Use representations to model and interpret physical, social, and mathematical phenomena

<p><b>PA MATH ASSESSMENT ANCHORS:</b></p> <p><b>M11.E.1.1.2</b> Analyze data and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots or scatter plots).</p> <p><b>M11.E.2.1.1</b> Calculate or select the appropriate measure of central tendency (mean, mode or median) of a set of data given or represented on a table, line plot or stem-and-leaf plot.</p> <p><b>M11.E.3.1.1</b> Find probabilities for independent, dependent or compound events and represent as a fraction, decimal or percent).</p> <p><b>M11.E.3.1.2</b> Find, convert and/or compare the probability and/or odds of a simple event.</p> <p><b>M11.E.3.2.1</b> Determine the number of permutations and/or combinations or apply the fundamental counting principle. (Formula provided on the reference sheet).</p> <p><b>M11.E.4.1.2</b> Use probability to predict outcomes.</p>	<p><b>UNIT OBJECTIVES:</b></p> <ol style="list-style-type: none"> <li>1. Use basic counting techniques.</li> <li>2. Count permutations and combinations.</li> <li>3. Find the probability of an event A <b>and</b> B.</li> <li>4. Find the probability of an event A <b>or</b> B.</li> <li>5. Find conditional probability.</li> <li>6. Make and use probability distributions.</li> <li>7. Calculate measures of central tendency.</li> <li>8. Draw and interpret box-and-whisker plots.</li> </ol>
<p><b>ACTIVITIES:</b></p> <p>Teacher directed differentiated instructional projects and activities are ongoing and based on student need.</p> <p><b>Prentice Hall Algebra 2, 2007:</b> All-in-One Student Workbook Skill and Concept Review Masters Grab &amp; Go Chapter Support Files</p> <p><b>Additional Activities:</b></p> <ol style="list-style-type: none"> <li>1. Practice: Counting Outcomes</li> <li>2. Practice 41</li> <li>3. Permutations</li> <li>4. Practice: Permutations</li> <li>5. Practice 42</li> <li>6. Combinations</li> <li>7. Practice 1: Combinations</li> <li>8. Practice 2: Permutations and Combinations</li> <li>9. Practice 45</li> <li>10. Practice 1: Independent and Dependent Events</li> </ol>	<p><b>ASSESSMENTS:</b></p> <ul style="list-style-type: none"> <li>• Observation and questioning</li> <li>• Presentations and discussions</li> <li>• Projects and investigations</li> <li>• Mathematical Writing</li> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> </ul> <p><b>REMEDIATION:</b></p> <ul style="list-style-type: none"> <li>• Analyzing Events Not Equally Likely</li> <li>• Practice: Analyzing Events Not Equally Likely</li> <li>• Practice 2: Independent and Dependent Events</li> <li>• Activity 3: Wink Count</li> <li>• Re-teaching Worksheets</li> </ul> <p><b>Prentice Hall Algebra 2, 2007:</b> Hands-On Activities Skill and Concept Review Masters Online Video Tutor MindPoint Quiz Show CD-ROM: End-of-Chapter reviews</p>

11. Practice 2-7
12. Practice 44
13. Practice Worksheet 14-4
14. Practice 43
15. Practice 55
- 16.** Practice: Frequency Tables, Line Plots, and Histograms
- 17.** Reteaching 2: Frequency Distributions
- 18.** Practice 1: Measures of Central Tendency
19. Practice 2: Mean, Median, Mode and Outliers
- 20.** Activity 1: Choosing an Appropriate Measure
- 21.** Activity 2: Average Temperature
- 22.** Puzzle: Mean, Median, and Mode
- 23.** Practice: Box-and-Whisker Plots
- 24.** Bubbles