

Effective Spring 2012

DIVISION OF NATURAL SCIENCES AND MATHEMATICS

TIDEWATER COMMUNITY COLLEGE

VIRGINIA BEACH CAMPUS

Instructor Course Information

Course Number and Title MTE 1 - 9_____

Lecture Hours 1 Lab Hours: 0 Credit Hours: 1

Submitted by: Michael Kirby

Date: 12/11/11

Dean

Date: _____

Copies: Provost
 Dean of Instruction

I. COURSE DESCRIPTION

Operations and applications of proper and improper fractions and mixed numbers.

II. PREREQUISITES

Appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

IV. INSTRUCTIONAL MATERIALS

Textbook: BASIC COLLEGE MATHEMATICS WITH EARLY INTEGERS by Martin-Gay;
Pearson, 2011

ISBN: OPTIONAL

MyMathLab Access Code REQUIRED

NO CALCULATORS ALLOWED ON THIS UNIT

Students can purchase a MyMathLab access code at www.mymathlab.com and will have access to all of the resources, including the book.

STUDENTS MUST HAVE a MML ACCESS CODE. STUDENTS ARE NOT REQUIRED TO HAVE A BOOK.

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Chapter Test Prep DVD ROM

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MTE 1

V. UNIT OBJECTIVES

- 1.1 Write, simplify and compare fractions**
- 1.2 Perform operations with fractions**
- 1.3 Solve applications using U.S. customary units of measurement**

VI. MATERIAL TO BE COVERED WITHOUT THE USE OF A CALCULATOR

NOTE: ONLY COVER PROBLEMS THAT INVOLVE POSITIVE FRACTIONS

Suggested Class Hour Schedule Note one classroom hour is equivalent to 50 minutes

- Hour 1: 3.1 Introduction to Fractions and Mixed Numbers
- Hour 2: 3.2 Writing a Number as a Product of Prime Factors
- Hour 3: 3.2 Writing Fractions in Simplest Form
- Hour 4: 3.3 Multiplication of Fractions
- Hour 5: 3.3 Division of Fractions and Mixed Problems
- Hour 6: 3.4 Adding and Subtracting Like Fractions
- Hour 7: 3.4 Least Common Denominators(use Prime Factorization) and Writing Equivalent Fractions
- Hour 8: 3.5 Adding and Subtracting fractions Unlike Denominators
- Hour 9: Mixed review of All Operations
- Hour 10: 3.6 Fractions and the Order of Operations
- Hour 11: 3.6 Writing Mixed Numbers as Improper Fractions and Vice-Versa
- Hour 12: 3.7 Operations with Mixed Numbers
- Hour 13: Applications of Fraction and Mixed Numbers
- Hour 14: Comparing Fractions and Mixed Numbers Using $<$, $>$ or $=$
- Hour 15: Review

NOTE: All problems with negative fractions are to be omitted.

I. COURSE DESCRIPTION

Operations and applications of decimals and percents with an emphasis on applications.

II. PREREQUISITES

MTE 1 or appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

IV. INSTRUCTIONAL MATERIALS

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Pearson, 2011

ISBN: OPTIONAL

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Scientific Calculator (NO GRAPHING CALCULATORS allowed)

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MTE 2

V. UNIT OBJECTIVES

- 2.1 Demonstrate the meaning of a decimal numbers.
- 2.2 Perform operations with decimals.
- 2.3 Estimate decimals.
- 2.4 Demonstrate the relationship among fractions, decimals and percents.
- 2.5 Solve percent problems
- 2.6 Read and interpret basic graphs.
- 2.7 Covert units of measure.
- 2.8 Solve application problems using U.S. customary and metric units of measurement.

VI. MATERIAL TO BE COVERED

NOTE: ONLY COVER Problems with POSITIVE DECIMALS

Suggested Class Hour Schedule Note: one classroom hour is equivalent to 50 minutes

- Hour 1: 4.1 Decimal Notation, Writing Decimals in Words and Writing Decimals in Standard form
- Hour 2: 4.1 Writing Decimals as Fractions, Comparing Decimals, and Rounding
- Hour 3: 4.2 Adding and Subtracting Decimals
- Hour 4: 4.3 Multiplying Decimals
- Hour 5: 4.4 Dividing Decimals
- Hour 6: 4.5 Writing a Decimal as a Fraction and Comparing Fractions and Decimals
- Hour 7: 6.1 Understanding percent, Writing Percents as Decimals and Fractions and Writing Decimals or Fractions as Percents
- Hour 8: 6.2 Writing percent Problems as Equations, Solving Percent problems
- Hour 9: 6.4 Solving applications Involving Percents, Finding Percent Increase and Percent Decrease
- Hour 10: 6.5 Percent and Problem Solving: Sales tax and Commission
- Hour 11: 6.6 Percent and Problem Solving: Interest
- Hour 12: 6.7 & 6.8 Reading Bar Graphs, Line Graphs, Circle Graphs (pie charts)
- Hour 13: 5.4, 5.5, 5.6 Converting U.S. System and Metric System Units for Length, Weight, Mass and Volume
- Hour 14: 5.7 Converting between U.S. and Metric Systems
- Hour 15: Review

I. COURSE DESCRIPTION

Perform basic operations with algebraic expressions and solve simple algebraic equations using signed numbers with an emphasis on applications.

II. PREREQUISITES

MTE 2 or Appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

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MTE 3

V. UNIT OBJECTIVES

- 3.1 Determine the absolute value of a number.
- 3.2 Determine proper use of exponents.
- 3.3 Find the principal square root of a perfect square.
- 3.4 Simplify expressions involving signed numbers.
- 3.5 Simplify algebraic expressions
- 3.6 Evaluate a formula or algebraic expression for given values of variable.
- 3.7 Solve One-step equations using addition and multiplication properties.
- 3.8 Solve problems involving proportion.
- 3.9 Solve application problems including perimeter, area and volume.

VI. MATERIAL TO BE COVERED

Suggested Class Hour Schedule Note: one classroom hour is equivalent to 50 minutes

- Hour 1: 1.9 Using Exponential Notation, Evaluating Exponential Expressions, Evaluating Square Roots
- Hour 2: 2.2 Comparing Integers and Finding the Absolute Value of a Number
- Hour 3: 2.3 Adding Integers
- Hour 4: 2.4 Subtracting Integers
- Hour 5: 2.5 Multiplying and Dividing Integers
- Hour 6: Integrated Review
- Hour 7: 2.6 Order of Operations: Simplifying Expressions and Evaluating Expressions
- Hour 8: 7.1 Combining Like Terms, Multiplying Expressions (using the Distributive Property), Mention Properties of Real Numbers, p. 557
- Hour 9: 7.2 Determining whether a Number is a Solution and Using the Addition Property to Solve Equations
- Hour 10: 7.3 Using the Multiplication Property to Solve Equations
- Hour 11: 7.4 Solving equations Using addition and Multiplication Properties
- Hour 12: Solve Problems including finding perimeter, area, and volume.
- Hour 13: 5.1 and 5.2 Writing a Ratio as a Fraction, Writing Proportions, Determining if Proportions are True and Finding Unknown Numbers in a Proportion
- Hour 14: 5.3 Proportions and Problem Solving
- Hour 15: Review

I. COURSE DESCRIPTION

Solve first degree equations and inequalities in one variable with an emphasis on applications

II. PREREQUISITES

MTE 3 or Appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

IV. INSTRUCTIONAL MATERIALS

Textbook: ALGEBRA: A COMBINED APPROACH-Custom Edition by Martin-Gay;
Pearson
ISBN: OPTIONAL

MyMathLab Access Code REQUIRED
Scientific Calculator (NO Graphing Calculators allowed)

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- Lecture Videos DVD ROM
- My Math Lab student access code

MTE 4

V. UNIT OBJECTIVES

- 4.1 Solve first degree equations in one variable.
- 4.2 Solve a formula or equation for one of its variables.
- 4.3 Solve first degree absolute value equation containing a single absolute value.
- 4.4 Solve first degree inequalities in one variable.
- 4.5 Solve application problems using a single first degree equation or inequality.

VI. MATERIAL TO BE COVERED

Suggested Class Hour Schedule Note: one classroom hour is equivalent to 50 minutes

- Hour 1: 2.1 Solving Linear Equations Using the Addition Property, Simplifying Equations
- Hour 2: 2.2 Solving Linear Equations Using the Multiplication Property, Using Both the Addition and Multiplication Properties
- Hour 3: 2.3 Solving Linear Equations Containing Fractions or Decimals
- Hour 4: 2.3 Recognizing Identities and Equations with No Solution, Integrated Review
- Hour 5: 1.8, 2.1, 2.2 Writing Algebraic Expressions
- Hour 6: 2.4 Translating and Solving Problems: Direct Translation Problems
- Hour 7: 2.4 Applications Finding More than One Unknown
- Hour 8: 2.6 Solving Distance or Uniform Motion Problems
- Hour 9: 2.5 Geometry Applications (Supplementary & Complementary Angles, Perimeter)
- Hour 10: Applications Review
- Hour 11: 2.5 Solving a Formula for a Variable
- Hour 12: 2.7, 8.3 Graphing Inequalities on a Number Line, Using Interval Notation
- Hour 13: 2.7 Solving Linear Inequalities Using Addition and Multiplication Properties
- Hour 14: 11.3 Solving Absolute Value Equations with One Absolute Value
- Hour 15: Review

NOTE: Mixture and Consecutive Integer Problems have been omitted. Mixture problems will be covered in MTE 4 with Systems of Linear equations.

MTE 5 Linear Equations, Inequalities & Systems of Linear Equations in Two Variables Effective Spring 2012

I. COURSE DESCRIPTION

Find equations of lines, graph linear equations and inequalities in two variables and solve systems of two linear equations

II. PREREQUISITES

MTE 4 or Appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

IV. INSTRUCTIONAL MATERIALS

Textbook: ALGEBRA: A COMBINED APPROACH-Custom Edition by Martin-Gay;
Pearson
ISBN: OPTIONAL

MyMathLab Access Code REQUIRED
Scientific Calculator (NO Graphing Calculators allowed)

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- Lecture Videos DVD ROM
- My Math Lab student access code

MTE 5

V. UNIT OBJECTIVES

- 5.1 Define the Properties of the rectangular coordinate system
- 5.2 Graph a linear equation in two variables
- 5.3 Graph a linear inequality in two variables
- 5.4 Find the slope of a line
- 5.5 Write the Equation of a line
- 5.6 Solve Systems of linear equations
- 5.7 Use Function notation
- 5.8 Solve application problems that require linear equations, inequalities and systems of linear equations in two variables

VI. MATERIAL TO BE COVERED

Suggested Class Hour Schedule Note: one classroom hour is equivalent to 50 minutes

- Hour 1: 6.1 Plotting Ordered Pairs, Completing Ordered Pair Solutions
- Hour 2: 6.2 Graphing Linear Equations
- Hour 3: 6.3 Identifying Intercepts, Finding and Plotting Intercepts
- Hour 4: 6.3 Graphing Vertical and Horizontal Lines
- Hour 5: 6.4 Find Slope of a Line Given Two Points of the Line, Slopes of Parallel and Perpendicular Lines
- Hour 6: 6.5 Graphing a line Using Its Slope and y-Intercept
- Hour 7: 6.6 Using the Point-Slope Form to Write an Equation of a Line
- Hour 8: 6.6 Writing equations of Vertical and Horizontal Lines, Writing Equations of Parallel and Perpendicular Lines
- Hour 9: 7.1 Solving Systems of Linear Equations by Graphing: Deciding Whether an Ordered Pair Is a Solution, Solving Systems of Equations by Graphing
- Hour 10: 7.2 Using the Substitution Method to Solve Systems of Linear Equations
- Hour 11: 7.3 Using the Addition Method to Solve Systems of Linear Equations
- Hour 12: 7.4 Using a System of Equations for Problem Solving
- Hour 13: 7.5 Graphing Linear Inequalities in Two Variables
- Hour 14: 8.1 Introduction to Functions: Defining Relation, Domain and Range, Identify Functions, Use Function Notation
- Hour 15: Review

I. COURSE DESCRIPTION

Perform operations on exponential expressions and polynomials, factor polynomials and solve polynomial equations

II. PREREQUISITES

MTE 5 or Appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

IV. INSTRUCTIONAL MATERIALS

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Pearson
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MTE 6

V. UNIT OBJECTIVES

- 6.1 Perform operations on exponential expressions using rules of exponents
- 6.2 Define, add, subtract, multiply and divide polynomials
- 6.3 Factor polynomials
- 6.4 Solve polynomial equations using factoring techniques
- 6.5 Solve application problems involving polynomial equations and factoring

VI. MATERIAL TO BE COVERED

Suggested Class Hour Schedule Note: one classroom hour is equivalent to 50 minutes

- Hour 1: 3.1 Use Product Rule for Exponents, Use the Power Rule for Exponents, Use the Power Rule for Products and Quotients
- Hour 2: 3.1 Use the Quotient Rule for Exponents and Define a Number Raised to the Zero Power
- Hour 3: 3.2 Simplifying Expressions Containing Negative Exponents, Simplifying Exponential Expressions, Writing Numbers in Scientific Notation and Converting Numbers to Standard Form
- Hour 4: 3.3 Defining Term and Coefficient, Defining Polynomial, Monomial, Binomial, Trinomial and Degree, Simplify Polynomials by Combining Like Terms
- Hour 5: 3.4 Adding and Subtracting Polynomials
- Hour 6: 3.5, 3.6 Multiplying Polynomials and Dividing by a Monomial
NOTE: Special Products is OMITTED
- Hour 7: 4.1 Greatest Common Factor
- Hour 8: 4.1 factoring by Grouping
- Hour 9: 4.2 Factoring Quadratic Trinomials by Grouping
NOTE: Perfect Square trinomials are omitted. This can be covered in MTE 8 With Completing the Square
- Hour 10: 4.3 Factoring the Difference of Perfect Squares
- Hour 11: 4.3 Factoring the Sum or Difference of perfect Cubes
- Hour 12: Integrated Review of Factoring
- Hour 13: 4.4 Solve Quadratic Equations by Factoring
- Hour 14: 4.5 Quadratic Equations and Problem Solving
- Hour 15: Review

I. COURSE DESCRIPTION

Simplify rational algebraic expressions; solve rational algebraic equations and applications

II. PREREQUISITES

MTE 6 or Appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

IV. INSTRUCTIONAL MATERIALS

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Pearson
ISBN: OPTIONAL

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MTE 7

V. UNIT OBJECTIVES

- 7.1 Identify a rational Algebraic expression
- 7.2 Simplify rational algebraic expressions
- 7.3 Perform arithmetic operations with rational algebraic expressions
- 7.4 Solve rational algebraic equations
- 7.5 Solve application problems using rational algebraic equations

VI. MATERIAL TO BE COVERED

Suggested Class Hour Schedule Note: one classroom hour is equivalent to 50 minutes

- Hour 1: 5.1 Evaluating Rational Expressions, Identify Values for Which a Rational Expression is Undefined
- Hour 2: 5.1 Simplifying Rational Expressions
- Hour 3: 5.2 Multiplying Rational Expressions
- Hour 4: 5.2 Dividing Rational Expressions
- Hour 5: 5.3 Adding and Subtracting Rational Expressions with the Same Denominator
- Hour 6: 5.3 Finding the Least Common Denominator, Writing Equivalent Rational Expressions
- Hour 7: 5.4 Adding and Subtracting Rational Expressions with Different Denominators
- Hour 8: 5.5 Simplifying a Complex Fractions using Method 2
- Hour 9: Integrated Review
- Hour10: 5.6 Solving Equations Containing Rational Expressions
- Hour 11: Integrated Review: Rational Expressions and Equations
- Hour 12: 5.7 Problem Solving with Rational Equations: Solving Problems about Work
- Hour 13: 5.7 Problem Solving with Rational Equations: Solving Problems about Distance
- Hour 14: Long Polynomial Division Note: This is not covered in the book put is available in MML. Only cover if time permits.
- Hour 15: Review

I. COURSE DESCRIPTION

Simplify radical expressions and use rational exponents, solve radical equations and application problems.

II. PREREQUISITES

MTE 7 or Appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

IV. INSTRUCTIONAL MATERIALS

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ISBN: OPTIONAL

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MTE 8

V. UNIT OBJECTIVES

- 8.1 Demonstrate the equivalence of a radical and rational exponent forms
- 8.2 Compute and estimate radicals
- 8.3 Simplify radicals and radical expressions
- 8.4 Perform operations (add, subtract, multiply) on radicals and radical expressions
- 8.5 Rationalize the denominator (one or two terms)
- 8.6 Solve Radical equations
- 8.7 Define the imaginary unit and imaginary numbers
- 8.8 Simplify square roots of negative numbers using the imaginary unit
- 8.9 Solve application problems involving radicals

VI. MATERIAL TO BE COVERED

Suggested Class Hour Schedule Note: one classroom hour is equivalent to 50 minutes

- Hour 1: 9.1 Find Square Roots, Approximate Roots using a Calculator, Find Cube Roots, Find n th Roots
- Hour 2: 9.2 Rational Exponents
- Hour 3: 9.3 Simplifying Radical Expressions using Product and Quotient Rule for Radicals
- Hour 4: 9.3 Simplify Radicals
- Hour 5: 9.4 Adding or Subtracting Radical Expressions
- Hour 6: 9.4 Multiplying Radical Expressions
- Hour 7: 9.5 Rationalize Denominators with One Term
- Hour 8: 9.5 Rationalize Denominators Having Two Terms
- Hour 9: Integrated review
- Hour 10: 9.6 Solve Equations That Contain Radical Expressions
- Hour 11: 9.6 Use Pythagorean Theorem to Model Problems
- Hour 12: 9.3 Use the Distance and Midpoint Formulas
- Hour 13: 9.7 Write Square Roots in the Form “ bi ”
- Hour 14: 9.7 Add, Subtract and Multiply Complex Numbers
NOTE: Complex numbers and division is omitted. Raising “ i ” to an exponent other than “ i ” squared is omitted.
- Hour 15: Review

I. COURSE DESCRIPTION

Introduce functions in ordered pair, graph and equation form. Solve quadratic equations. Graph Quadratic functions and solve applications of quadratic functions

II. PREREQUISITES

MTE 8 or Appropriate score on the placement test. Students will not be allowed in the course without the required prerequisites.

III. GRADING

To successfully complete this unit a student must have an overall average of 75% or better, have at least a grade of 70% on the exit, unit test. The overall course grade is to consist of 80% from unit test and 20% from homework, quizzes, etc. Students will receive grades of "S" – satisfactory, "R" - reenroll, or "U" – unsatisfactory. Enrollment in subsequent MTE units or other MTH courses will not be allowed until successful completion of this unit.

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MTE 9

V. UNIT OBJECTIVES

- 9.1 Determine if a relation is a function and identify the domain and range of the function
- 9.2 Find all roots of quadratic equations using both the square root method and the quadratic formula
- 9.3 Analyze a quadratic function to determine its vertex by completing the square and using the formula
- 9.4 Graph a quadratic function using the vertex form and indicating the intercepts
- 9.5 Apply knowledge of quadratic functions to solve application problems from Geometry, economics, applied physics and other disciplines

VI. MATERIAL TO BE COVERED

Suggested Class Hour Schedule Note: one classroom hour is equivalent to 50 minutes

- Hour 1: 8.1 Define Relation, Domain and Range, Identify Functions, Use the Vertical Line Test for Functions
- Hour 2: 8.1 Use Function Notation and Graph Linear Functions
- Hour 3: 8.3 Find the Domain and Range from a Graph
- Hour 4: 8.4 The Algebra of Functions
- Hour 5: 8.4 Composite Functions
- Hour 6: 4.4 Review Solving Quadratic Equations by Factoring
(Students may need to review factoring on their own through the help features in MML)
- Hour 7: 10.1 Use the Square Root Property to Solve Quadratic Equations
- Hour 8: 10.1 Solve Quadratic Equations by Completing the Square
- Hour 9: 10.2 Solve Quadratic Equations by Using the Quadratic Formula
- Hour 10: Integrated Review of Solving Quadratic Equations
- Hour 11: 10.2 Solve Problems Modeled by Quadratic Equations
- Hour 12: 10.4 Graphing Quadratic Functions using the Vertex Formula
(It is not necessary to derive the formula using completing the square)
- Hour 13: Continue Graphing Quadratic Functions, Find the Maximum or Minimum Value of a Quadratic Function
- Hour 14: 10.4 Continue with Applications of Quadratic Functions
- Hour 15: Review