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<b>Course Name:</b> Math110 LBCC	<b>Course Code:</b> G6KAH-EA946
<b>ALEKS Course:</b> Beginning Algebra	<b>Instructor:</b> Prof. Ramirez
<b>Course Dates:</b> Begin: 08/30/2016 End: 12/15/2016	<b>Course Content:</b> 518 Topics (490 goal + 28 prerequisite) / 479 accessible topics
<b>Textbook:</b> Messersmith: Beginning Algebra, 1st Ed. (McGraw-Hill) - ALEKS 360	

Dates	Objective
	Prerequisite Topics (28 topics)
08/30/2016 - 09/06/2016	1. Ch.1-The Real Number System and Geometry (83 topics)
09/07/2016 - 09/12/2016	2. Ch.2-The Rules of Exponents (34 topics)
09/13/2016 - 09/26/2016	3. Ch.3-Linear Equations and Inequalities (108 topics)
09/27/2016 - 10/10/2016	4. Ch.4-Linear Equations in Two Variables (41 topics)
10/11/2016 - 10/17/2016	5. Ch.5-Solving Systems of Linear Equations (16 topics)
10/18/2016 - 10/24/2016	6. Ch.6-Polynomials (47 topics)
10/25/2016 - 11/07/2016	7. Ch.7-Factoring Polynomials (42 topics)
11/08/2016 - 11/14/2016	8. Ch.8-Rational Expressions (81 topics)
11/15/2016 - 11/28/2016	9. Ch.9-Roots and Radicals (63 topics)
11/29/2016 - 12/12/2016	10. Ch.10-Quadratic Equations (8 topics)

 Accessible Topic - Topics accessible to visually impaired students using a screen reader.

## Prerequisite Topics (28 topics)

- Evaluating an algebraic expression: Whole numbers with two operations 
- Least common multiple of 2 numbers 
- Word problem involving addition or subtraction of fractions with different denominators 
- Multiplication of 3 fractions 
- Writing an improper fraction as a mixed number 
- Writing a mixed number as an improper fraction 
- Decimal place value: Tenths and hundredths 
- Rounding decimals 
- Converting a decimal to a proper fraction in simplest form: Basic 
- Decimal addition with 3 numbers 
- Decimal subtraction: Basic 
- Decimal subtraction: Advanced 
- Decimal addition and subtraction with 3 or more numbers 
- Word problem with addition of 3 or 4 decimals and whole numbers 
- Multiplication of a decimal by a whole number 
- Decimal multiplication: Problem type 1 
- Multiplication of a decimal by a power of ten 
- Word problem with decimal addition and multiplication 
- Division of a decimal by a whole number 
- Division of a decimal by a power of ten 
- Converting a fraction to a terminating decimal: Basic 

- Converting a fraction to a repeating decimal: Basic [↗](#)
- Perimeter of a square or a rectangle [↗](#)
- Area of a square or a rectangle [↗](#)
- Acute, obtuse, and right angles [↗](#)
- Acute, obtuse, and right triangles
- Finding an angle measure of a triangle given two angles [↗](#)
- Table for a linear function [↗](#)

## Ch.1-The Real Number System and Geometry (83 topics, due on 09/06/2016)

### Section 1.1 (19 topics)

- Factors [↗](#)
- Prime numbers [↗](#)
- Prime factorization [↗](#)
- Equivalent fractions [↗](#)
- Simplifying a fraction [↗](#)
- Addition or subtraction of fractions with the same denominator [↗](#)
- Addition or subtraction of fractions with the same denominator and simplification [↗](#)
- Finding the LCD of two fractions [↗](#)
- Introduction to addition or subtraction of fractions with different denominators [↗](#)
- Addition or subtraction of fractions with different denominators [↗](#)
- Addition and subtraction of 3 fractions with different denominators [↗](#)
- Product of a unit fraction and a whole number [↗](#)
- Product of a fraction and a whole number: Problem type 1 [↗](#)
- Introduction to fraction multiplication [↗](#)
- Fraction multiplication [↗](#)
- Product of a fraction and a whole number: Problem type 2 [↗](#)
- The reciprocal of a number [↗](#)
- Division involving a whole number and a fraction [↗](#)
- Fraction division [↗](#)

### Section 1.2 (9 topics)

- Introduction to exponents [↗](#)
- Order of operations with whole numbers [↗](#)
- Order of operations with whole numbers and grouping symbols [↗](#)
- Order of operations with whole numbers and exponents: Basic [↗](#)
- Order of operations with whole numbers and exponents: Advanced [↗](#)
- Exponents and fractions [↗](#)
- Order of operations with fractions: Problem type 1 [↗](#)
- Order of operations with fractions: Problem type 2 [↗](#)
- Order of operations with fractions: Problem type 3 [↗](#)

### Section 1.4 (14 topics)

- Fractional position on a number line [↗](#)
- Reading decimal position on a number line: Tenths
- Plotting integers on a number line
- Writing a signed number for a real-world situation [↗](#)
- Using a common denominator to order fractions [↗](#)
- Introduction to ordering decimals
- Ordering decimals [↗](#)
- Ordering fractions and decimals [↗](#)
- Ordering integers [↗](#)
- Square root of a perfect square [↗](#)
- Using a calculator to approximate a square root [↗](#)
- Absolute value of a number [↗](#)
- Identifying numbers as integers or non-integers [↗](#)
- Identifying numbers as rational or irrational [↗](#)

### Section 1.5 (15 topics)

- Interpreting a bar graph
- Integer addition: Problem type 1 [↗](#)
- Integer addition: Problem type 2 [↗](#)
- Integer subtraction: Problem type 1 [↗](#)
- Integer subtraction: Problem type 2 [↗](#)
- Integer subtraction: Problem type 3 [↗](#)
- Addition and subtraction with 3 integers [↗](#)

- Addition and subtraction with 4 or 5 integers [↗](#)
- Word problem with addition or subtraction of integers [↗](#)
- Signed fraction addition or subtraction: Basic [↗](#)
- Signed fraction subtraction involving double negation [↗](#)
- Addition and subtraction of 3 fractions involving signs [↗](#)
- Signed decimal addition and subtraction [↗](#)
- Signed decimal addition and subtraction with 3 numbers [↗](#)
- Operations with absolute value: Problem type 2 [↗](#)

### Section 1.6 (10 topics)

- Integer multiplication and division [↗](#)
- Multiplication of 3 or 4 integers [↗](#)
- Division involving zero [↗](#)
- Signed fraction multiplication: Basic [↗](#)
- Signed fraction multiplication: Advanced [↗](#)
- Signed fraction division [↗](#)
- Signed decimal multiplication [↗](#)
- Signed decimal division [↗](#)
- Order of operations with integers [↗](#)
- Order of operations with integers and exponents [↗](#)

### Section 1.7 (16 topics)

- Evaluating an algebraic expression: Whole number operations and exponents [↗](#)
- Evaluating a linear expression: Integer multiplication with addition or subtraction [↗](#)
- Evaluating a quadratic expression: Integers [↗](#)
- Combining like terms: Whole number coefficients [↗](#)
- Combining like terms: Integer coefficients [↗](#)
- Introduction to properties of addition [↗](#)
- Multiplying a constant and a linear monomial [↗](#)
- Distributive property: Whole number coefficients [↗](#)
- Distributive property: Integer coefficients [↗](#)
- Introduction to properties of multiplication [↗](#)
- Using distribution and combining like terms to simplify: Univariate [↗](#)
- Using distribution with double negation and combining like terms to simplify: Multivariate [↗](#)
- Combining like terms in a quadratic expression [↗](#)
- Writing a one-step expression for a real-world situation [↗](#)
- Translating a phrase into a one-step expression [↗](#)
- Translating a phrase into a two-step expression [↗](#)

## Ch.2-The Rules of Exponents (34 topics, due on 09/12/2016)

### Section 2.1a (10 topics)

- Writing expressions using exponents [↗](#)
- Exponents and integers: Problem type 1 [↗](#)
- Exponents and integers: Problem type 2 [↗](#)
- Exponents and signed fractions [↗](#)
- Understanding the product rule of exponents [↗](#)
- Introduction to the product rule of exponents [↗](#)
- Product rule with positive exponents: Univariate [↗](#)
- Understanding the power rules of exponents [↗](#)
- Introduction to the power of a power rule of exponents [↗](#)
- Introduction to the power of a product rule of exponents [↗](#)

### Section 2.1b (4 topics)

- Product rule with positive exponents: Multivariate [↗](#)
- Power rules with positive exponents: Multivariate products [↗](#)
- Power rules with positive exponents: Multivariate quotients [↗](#)
- Power and product rules with positive exponents [↗](#)








### Section 2.2a (4 topics)

- Evaluating expressions with exponents of zero [↗](#)
- Evaluating an expression with a negative exponent: Whole number base [↗](#)
- Evaluating an expression with a negative exponent: Positive fraction base [↗](#)
- Evaluating an expression with a negative exponent: Negative integer base [↗](#)










Section 2.2b (1 topic)

- Rewriting an algebraic expression without a negative exponent 

Section 2.3 (7 topics)

- Simplifying a ratio of multivariate monomials: Basic 
- Introduction to the quotient rule of exponents 
- Simplifying a ratio of univariate monomials 
- Quotient of expressions involving exponents 
- Simplifying a ratio of multivariate monomials: Advanced 
- Quotient rule with negative exponents: Problem type 1 
- Quotient rule with negative exponents: Problem type 2 
















Chapter 2 - Putting It All Together (9 topics\*)

- Product rule with positive exponents: Multivariate 
- Power and quotient rules with positive exponents 
- Introduction to the product rule with negative exponents 
- Product rule with negative exponents 
- Power of a power rule with negative exponents 
- Power rules with negative exponents 
- Power and quotient rules with negative exponents: Problem type 1 
- Power and quotient rules with negative exponents: Problem type 2 
- Power, product, and quotient rules with negative exponents 









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**Ch.3-Linear Equations and Inequalities** (108 topics, due on 09/26/2016)





Section 3.1 (15 topics)

- Additive property of equality with whole numbers 
- Additive property of equality with decimals 
- Additive property of equality with integers 
- Additive property of equality with signed fractions 
- Multiplicative property of equality with whole numbers 
- Multiplicative property of equality with fractions 
- Multiplicative property of equality with decimals 
- Multiplicative property of equality with integers 
- Multiplicative property of equality with signed fractions 
- Identifying solutions to a linear equation in one variable: Two-step equations 
- Using two steps to solve an equation with whole numbers 
- Additive property of equality with a negative coefficient 
- Solving a two-step equation with integers 
- Solving a two-step equation with signed decimals 
- Solving a two-step equation with signed fractions 



Section 3.2 (8 topics)

- Introduction to solving an equation with parentheses 
- Solving a multi-step equation given in fractional form 
- Introduction to solving an equation with variables on the same side 
- Solving a linear equation with several occurrences of the variable: Variables on the same side 
- Solving a linear equation with several occurrences of the variable: Variables on both sides 
- Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution 
- Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution 
- Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions 

Section 3.3 (4 topics)

- Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients 
- Solving equations with zero, one, or infinitely many solutions 
- Translating a sentence into a one-step equation 
- Translating a sentence into a multi-step equation 

Section 3.4 (6 topics)

- Writing a one-step expression for a real-world situation 
- Solving a fraction word problem using a linear equation of the form  $Ax = B$  

- Solving a word problem with two unknowns using a linear equation [↗](#)
- Solving a decimal word problem using a linear equation of the form  $Ax + B = C$  [↗](#)
- Solving a word problem with three unknowns using a linear equation [↗](#)
- Solving a word problem involving consecutive integers [↗](#)

### Section 3.5 (25 topics)

- Converting a fraction with a denominator of 100 to a percentage [↗](#)
- Converting a percentage to a fraction with a denominator of 100 [↗](#)
- Introduction to converting a percentage to a decimal [↗](#)
- Introduction to converting a decimal to a percentage [↗](#)
- Converting between percentages and decimals [↗](#)
- Converting a fraction to a percentage: Denominator of 4, 5, or 10 [↗](#)
- Converting a fraction to a percentage: Denominator of 20, 25, or 50 [↗](#)
- Using a calculator to convert a fraction to a rounded percentage [↗](#)
- Solving a value mixture problem using a linear equation [↗](#)
- Finding a percentage of a whole number [↗](#)
- Finding a percentage of a whole number without a calculator: Basic [↗](#)
- Finding a percentage of a whole number without a calculator: Advanced [↗](#)
- Applying the percent equation: Problem type 1 [↗](#)
- Finding a percentage of a total amount: Real-world situations [↗](#)
- Finding a percentage of a total amount without a calculator: Sales tax, commission, discount [↗](#)
- Finding the rate of a tax or commission [↗](#)
- Finding the total amount given the percentage of a partial amount [↗](#)
- Finding the final amount given the original amount and a percentage increase or decrease [↗](#)
- Finding the sale price given the original price and percent discount [↗](#)
- Finding the sale price without a calculator given the original price and percent discount [↗](#)
- Finding the total cost including tax or markup [↗](#)
- Finding the original amount given the result of a percentage increase or decrease [↗](#)
- Finding the original price given the sale price and percent discount [↗](#)
- Finding the percentage increase or decrease: Basic [↗](#)
- Solving a percent mixture problem using a linear equation [↗](#)

### Section 3.6 (13 topics)

- Solving for a variable in terms of other variables using addition or subtraction: Basic [↗](#)
- Solving for a variable in terms of other variables using addition or subtraction: Advanced [↗](#)
- Solving for a variable in terms of other variables using multiplication or division: Basic [↗](#)
- Solving for a variable in terms of other variables using multiplication or division: Advanced [↗](#)
- Solving for a variable in terms of other variables using addition or subtraction with division [↗](#)
- Solving for a variable inside parentheses in terms of other variables [↗](#)
- Solving for a variable in terms of other variables in a linear equation with fractions [↗](#)
- Converting between temperatures in Fahrenheit and Celsius [↗](#)
- Finding the side length of a rectangle given its perimeter or area [↗](#)
- Finding the perimeter or area of a rectangle given one of these values [↗](#)
- Solving equations involving vertical angles [↗](#)
- Finding angle measures of a triangle given angles with variables [↗](#)
- Finding angle measures of a right or isosceles triangle given angles with variables [↗](#)

### Section 3.7 (13 topics\*)

- Solving a word problem on proportions using a unit rate [↗](#)
- Solving a proportion of the form  $x/a = b/c$  [↗](#)
- Solving a proportion of the form  $(x+a)/b = c/d$  [↗](#)
- Solving a value mixture problem using a linear equation [↗](#)
- Solving a one-step word problem using the formula  $d = rt$  [↗](#)
- Solving a distance, rate, time problem using a linear equation [↗](#)
- Writing ratios using different notations [↗](#)
- Writing ratios for real-world situations [↗](#)
- Simplifying a ratio of whole numbers: Problem type 1 [↗](#)
- Finding a unit price [↗](#)
- Computing unit prices to find the better buy [↗](#)
- Word problem on proportions: Problem type 1 [↗](#)
- Similar polygons [↗](#)

### Section 3.8 (25 topics)

- Mean of a data set [↗](#)
- Finding the value for a new score that will yield a given mean [↗](#)
- Translating a sentence by using an inequality symbol [↗](#)

- Translating a sentence into a one-step inequality [↗](#)
- Translating a sentence into a multi-step inequality [↗](#)
- Writing an inequality for a real-world situation [↗](#)
- Graphing a linear inequality on the number line
- Writing an inequality given a graph on the number line
- Graphing a compound inequality on the number line
- Set builder and interval notation
- Identifying solutions to a two-step linear inequality in one variable [↗](#)
- Additive property of inequality with whole numbers [↗](#)
- Additive property of inequality with integers [↗](#)
- Additive property of inequality with signed fractions [↗](#)
- Additive property of inequality with signed decimals [↗](#)
- Multiplicative property of inequality with integers [↗](#)
- Multiplicative property of inequality with signed fractions [↗](#)
- Solving a two-step linear inequality: Problem type 1 [↗](#)
- Solving a two-step linear inequality: Problem type 2 [↗](#)
- Solving a two-step linear inequality with a fractional coefficient [↗](#)
- Solving a linear inequality with multiple occurrences of the variable: Problem type 1 [↗](#)
- Solving a linear inequality with multiple occurrences of the variable: Problem type 2 [↗](#)
- Solving a linear inequality with multiple occurrences of the variable: Problem type 3 [↗](#)
- Solving a compound linear inequality: Graph solution, basic
- Solving a decimal word problem using a two-step linear inequality [↗](#)

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## Ch.4-Linear Equations in Two Variables (41 topics, due on 10/10/2016)

### Section 4.1 (7 topics)

- Interpreting a bar graph
- Interpreting a line graph [↗](#)
- Reading a point in the coordinate plane
- Plotting a point in the coordinate plane
- Table for a linear equation [↗](#)
- Identifying solutions to a linear equation in two variables [↗](#)
- Finding a solution to a linear equation in two variables [↗](#)

### Section 4.2 (11 topics\*)

- Table for a linear equation [↗](#)
- Graphing a linear equation of the form  $y = mx$
- Graphing a line given its equation in slope-intercept form: Integer slope
- Graphing a line given its equation in slope-intercept form: Fractional slope
- Graphing a line given its equation in standard form
- Graphing a vertical or horizontal line
- Finding x- and y-intercepts given the graph of a line on a grid
- Finding x- and y-intercepts of a line given the equation: Basic [↗](#)
- Finding x- and y-intercepts of a line given the equation: Advanced [↗](#)
- Graphing a line given its x- and y-intercepts
- Graphing a line by first finding its x- and y-intercepts

### Section 4.3 (5 topics)

- Classifying slopes given graphs of lines
- Finding slope given the graph of a line on a grid
- Finding slope given two points on the line [↗](#)
- Finding the slope of horizontal and vertical lines [↗](#)
- Graphing a line through a given point with a given slope

### Section 4.4 (9 topics)

- Graphing a line given its slope and y-intercept
- Finding the slope and y-intercept of a line given its equation in the form  $y = mx + b$  [↗](#)
- Finding the slope and y-intercept of a line given its equation in the form  $Ax + By = C$  [↗](#)
- Graphing a line by first finding its slope and y-intercept
- Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form [↗](#)
- Finding slopes of lines parallel and perpendicular to a line given in the form  $Ax + By = C$  [↗](#)
- Identifying parallel and perpendicular lines from equations
- Interpreting the parameters of a linear function that models a real-world situation [↗](#)
- Finding an output of a function from its graph

Section 4.5 (11 topics\*)

- Rewriting a linear equation in the form  $Ax + By = C$
- Writing an equation of a line given its slope and y-intercept
- Writing an equation in slope-intercept form given the slope and a point
- Writing an equation in point-slope form given the slope and a point
- Writing an equation of a line given the y-intercept and another point
- Writing the equation of the line through two given points
- Writing the equations of vertical and horizontal lines through a given point
- Finding slopes of lines parallel and perpendicular to a line given in the form  $Ax + By = C$
- Writing equations of lines parallel and perpendicular to a given line through a point
- Writing and evaluating a function that models a real-world situation: Advanced
- Application problem with a linear function: Finding a coordinate given two points

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**Ch.5-Solving Systems of Linear Equations** (16 topics, due on 10/17/2016)

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Section 5.1 (4 topics)

- Identifying solutions to a system of linear equations
- Classifying systems of linear equations from graphs
- Graphically solving a system of linear equations
- Interpreting the graphs of two functions

Section 5.2 (1 topic)

- Solving a system of linear equations using substitution

Section 5.3 (5 topics)

- Solving a system of linear equations using elimination with addition
- Solving a system of linear equations using elimination with multiplication and addition
- Solving a system of linear equations with fractional coefficients
- Solving a system of linear equations with decimal coefficients
- Solving a 2x2 system of linear equations that is inconsistent or consistent dependent

Section 5.4 (6 topics)

- Solving a word problem involving a sum and another basic relationship using a system of linear equations
- Solving a word problem using a system of linear equations of the form  $Ax + By = C$
- Solving a value mixture problem using a system of linear equations
- Solving a percent mixture problem using a system of linear equations
- Solving a distance, rate, time problem using a system of linear equations
- Solving a tax rate or interest rate problem using a system of linear equations

**Ch.6-Polynomials** (47 topics, due on 10/24/2016)

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Section 6.1 (21 topics)

- Introduction to the product rule of exponents
- Product rule with positive exponents: Univariate
- Introduction to the power of a power rule of exponents
- Introduction to the power of a product rule of exponents
- Power rules with positive exponents: Multivariate products
- Power rules with positive exponents: Multivariate quotients
- Power and product rules with positive exponents
- Introduction to the quotient rule of exponents
- Simplifying a ratio of univariate monomials
- Quotient of expressions involving exponents
- Power and quotient rules with positive exponents
- Evaluating an expression with a negative exponent: Whole number base
- Evaluating an expression with a negative exponent: Positive fraction base
- Evaluating an expression with a negative exponent: Negative integer base
- Quotient rule with negative exponents: Problem type 1
- Quotient rule with negative exponents: Problem type 2
- Power of a power rule with negative exponents
- Power rules with negative exponents
- Power and quotient rules with negative exponents: Problem type 1
- Power and quotient rules with negative exponents: Problem type 2

- Power, product, and quotient rules with negative exponents [↗](#)

### Section 6.2 (9 topics)

- Evaluating a linear expression: Integer multiplication with addition or subtraction [↗](#)
- Evaluating a quadratic expression: Integers [↗](#)
- Combining like terms in a quadratic expression [↗](#)
- Evaluating functions: Linear and quadratic or cubic [↗](#)
- Degree and leading coefficient of a univariate polynomial [↗](#)
- Degree of a multivariate polynomial [↗](#)
- Simplifying a sum or difference of two univariate polynomials [↗](#)
- Simplifying a sum or difference of three univariate polynomials [↗](#)
- Simplifying a sum or difference of multivariate polynomials [↗](#)

### Section 6.3 (13 topics\*)

- Product rule with positive exponents: Univariate [↗](#)
- Multiplying a univariate polynomial by a monomial with a positive coefficient [↗](#)
- Multiplying a univariate polynomial by a monomial with a negative coefficient [↗](#)
- Multiplying a multivariate polynomial by a monomial [↗](#)
- Multiplying binomials with leading coefficients of 1 [↗](#)
- Multiplying binomials with leading coefficients greater than 1 [↗](#)
- Multiplying binomials in two variables [↗](#)
- Multiplying conjugate binomials: Univariate [↗](#)
- Multiplying conjugate binomials: Multivariate [↗](#)
- Squaring a binomial: Univariate [↗](#)
- Squaring a binomial: Multivariate [↗](#)
- Multiplying binomials with negative coefficients [↗](#)
- Multiplication involving binomials and trinomials in one variable [↗](#)

### Section 6.4 (5 topics)

- Dividing a polynomial by a monomial: Univariate [↗](#)
- Dividing a polynomial by a monomial: Multivariate [↗](#)
- Polynomial long division: Problem type 1
- Polynomial long division: Problem type 2
- Polynomial long division: Problem type 3

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## Ch.7-Factoring Polynomials (42 topics, due on 11/07/2016)

### Section 7.1 (11 topics)

- Greatest common factor of 2 numbers [↗](#)
- Factoring a linear binomial [↗](#)
- Introduction to the GCF of two monomials [↗](#)
- Greatest common factor of three univariate monomials [↗](#)
- Greatest common factor of two multivariate monomials [↗](#)
- Factoring out a monomial from a polynomial: Univariate [↗](#)
- Factoring out a monomial from a polynomial: Multivariate [↗](#)
- Factoring out a binomial from a polynomial: GCF factoring, basic [↗](#)
- Factoring a univariate polynomial by grouping: Problem type 1 [↗](#)
- Factoring a univariate polynomial by grouping: Problem type 2 [↗](#)
- Factoring a multivariate polynomial by grouping: Problem type 1 [↗](#)

### Section 7.2 (3 topics)

- Factoring a quadratic with leading coefficient 1 [↗](#)
- Factoring a quadratic in two variables with leading coefficient 1 [↗](#)
- Factoring out a constant before factoring a quadratic [↗](#)

### Section 7.3 (6 topics)

- Factoring a quadratic with leading coefficient greater than 1: Problem type 1 [↗](#)
- Factoring a quadratic with leading coefficient greater than 1: Problem type 2 [↗](#)
- Factoring a quadratic with leading coefficient greater than 1: Problem type 3 [↗](#)
- Factoring a quadratic by the ac-method [↗](#)
- Factoring a quadratic in two variables with leading coefficient greater than 1 [↗](#)
- Factoring a quadratic with a negative leading coefficient [↗](#)



Section 7.4 (10 topics)

- Factoring a perfect square trinomial with leading coefficient 1 [↗](#)
- Factoring a perfect square trinomial with leading coefficient greater than 1 [↗](#)
- Factoring a perfect square trinomial in two variables [↗](#)
- Factoring a difference of squares in one variable: Basic [↗](#)
- Factoring a difference of squares in one variable: Advanced [↗](#)
- Factoring a difference of squares in two variables [↗](#)
- Factoring a polynomial involving a GCF and a difference of squares: Univariate [↗](#)
- Factoring a product of a quadratic trinomial and a monomial [↗](#)
- Factoring with repeated use of the difference of squares formula [↗](#)
- Factoring a sum or difference of two cubes [↗](#)

Section 7.5 (5 topics)

- Solving an equation written in factored form [↗](#)
- Finding the roots of a quadratic equation of the form  $ax^2 + bx = 0$  [↗](#)
- Finding the roots of a quadratic equation with leading coefficient 1 [↗](#)
- Finding the roots of a quadratic equation with leading coefficient greater than 1 [↗](#)
- Solving a quadratic equation needing simplification [↗](#)

Section 7.6 (5 topics)

- Solving a word problem using a quadratic equation with rational roots [↗](#)
- Introduction to the Pythagorean Theorem [↗](#)
- Pythagorean Theorem [↗](#)
- Word problem involving the Pythagorean Theorem [↗](#)
- Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle [↗](#)

Chapter 7 (2 topics)

- Factoring a multivariate polynomial by grouping: Problem type 2 [↗](#)
- Factoring a polynomial involving a GCF and a difference of squares: Multivariate [↗](#)

**Ch.8-Rational Expressions** (81 topics, due on 11/14/2016)

Section 8.1 (10 topics)

- Simplifying a ratio of univariate monomials [↗](#)
- Restriction on a variable in a denominator: Linear [↗](#)
- Restriction on a variable in a denominator: Quadratic [↗](#)
- Simplifying a ratio of factored polynomials: Linear factors [↗](#)
- Simplifying a ratio of polynomials using GCF factoring [↗](#)
- Simplifying a ratio of linear polynomials: 1, -1, and no simplification [↗](#)
- Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1 [↗](#)
- Simplifying a ratio of polynomials: Problem type 1 [↗](#)
- Simplifying a ratio of polynomials: Problem type 2 [↗](#)
- Simplifying a ratio of polynomials: Problem type 3 [↗](#)

Section 8.2 (11 topics)

- Multiplying rational expressions involving multivariate monomials [↗](#)
- Multiplying rational expressions made up of linear expressions [↗](#)
- Multiplying rational expressions involving quadratics with leading coefficients of 1 [↗](#)
- Multiplying rational expressions involving quadratics with leading coefficients greater than 1 [↗](#)
- Multiplying rational expressions involving multivariate quadratics [↗](#)
- Dividing rational expressions involving multivariate monomials [↗](#)
- Dividing rational expressions involving linear expressions [↗](#)
- Dividing rational expressions involving quadratics with leading coefficients of 1 [↗](#)
- Dividing rational expressions involving quadratics with leading coefficients greater than 1 [↗](#)
- Dividing rational expressions involving multivariate quadratics [↗](#)
- Multiplication and division of 3 rational expressions [↗](#)

Section 8.3 (9 topics)

- Least common multiple of 3 numbers [↗](#)
- Introduction to the LCM of two monomials [↗](#)
- Least common multiple of two monomials [↗](#)
- Finding the LCD of rational expressions with linear denominators: Relatively prime [↗](#)
- Finding the LCD of rational expressions with linear denominators: Common factors [↗](#)

- Finding the LCD of rational expressions with quadratic denominators [↗](#)
- Writing equivalent rational expressions with monomial denominators [↗](#)
- Writing equivalent rational expressions with polynomial denominators [↗](#)
- Writing equivalent rational expressions involving opposite factors [↗](#)

#### Section 8.4 (17 topics)

- Introduction to adding fractions with variables and common denominators [↗](#)
- Adding rational expressions with common denominators and monomial numerators [↗](#)
- Adding rational expressions with common denominators and binomial numerators [↗](#)
- Adding rational expressions with common denominators and GCF factoring [↗](#)
- Adding rational expressions with common denominators and quadratic factoring [↗](#)
- Adding rational expressions with different denominators and a single occurrence of a variable [↗](#)
- Adding rational expressions with denominators  $ax$  and  $bx$ : Basic [↗](#)
- Adding rational expressions with denominators  $ax$  and  $bx$ : Advanced [↗](#)
- Adding rational expressions with denominators  $ax^n$  and  $bx^m$  [↗](#)
- Adding rational expressions with multivariate monomial denominators: Basic [↗](#)
- Adding rational expressions with linear denominators without common factors: Basic [↗](#)
- Adding rational expressions with linear denominators without common factors: Advanced [↗](#)
- Adding rational expressions with linear denominators with common factors: Basic [↗](#)
- Adding rational expressions with linear denominators with common factors: Advanced [↗](#)
- Adding rational expressions with denominators  $ax-b$  and  $b-ax$  [↗](#)
- Adding rational expressions involving different quadratic denominators [↗](#)
- Adding 3 rational expressions with different quadratic denominators [↗](#)

#### Section 8.5 (11 topics)

- Complex fraction without variables: Problem type 1 [↗](#)
- Complex fraction without variables: Problem type 2 [↗](#)
- Complex fraction involving univariate monomials [↗](#)
- Complex fraction involving multivariate monomials [↗](#)
- Complex fraction: GCF factoring [↗](#)
- Complex fraction: Quadratic factoring [↗](#)
- Complex fraction made of sums involving rational expressions: Problem type 1 [↗](#)
- Complex fraction made of sums involving rational expressions: Problem type 2 [↗](#)
- Complex fraction made of sums involving rational expressions: Problem type 3 [↗](#)
- Complex fraction made of sums involving rational expressions: Problem type 6 [↗](#)
- Complex fraction made of sums involving rational expressions: Multivariate [↗](#)

#### Section 8.6 (20 topics)

- Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators [↗](#)
- Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators [↗](#)
- Solving a proportion of the form  $(x+a)/b = c/d$  [↗](#)
- Solving a proportion of the form  $a/(x+b) = c/x$  [↗](#)
- Solving a rational equation that simplifies to linear: Denominator  $x$  [↗](#)
- Solving a rational equation that simplifies to linear: Denominator  $x+a$  [↗](#)
- Solving a rational equation that simplifies to linear: Denominators  $a$ ,  $x$ , or  $ax$  [↗](#)
- Solving a rational equation that simplifies to linear: Denominators  $ax$  and  $bx$  [↗](#)
- Solving a rational equation that simplifies to linear: Like binomial denominators [↗](#)
- Solving a rational equation that simplifies to linear: Unlike binomial denominators [↗](#)
- Solving a rational equation that simplifies to linear: Factorable quadratic denominator [↗](#)
- Solving a rational equation that simplifies to quadratic: Proportional form, basic [↗](#)
- Solving a rational equation that simplifies to quadratic: Denominator  $x$  [↗](#)
- Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators [↗](#)
- Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators [↗](#)
- Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator [↗](#)
- Solving a rational equation that simplifies to quadratic: Proportional form, advanced [↗](#)
- Solving for a variable in terms of other variables in a rational equation: Problem type 1 [↗](#)
- Solving for a variable in terms of other variables in a rational equation: Problem type 2 [↗](#)
- Solving for a variable in terms of other variables in a rational equation: Problem type 3 [↗](#)

#### Section 8.7 (3 topics)

- Word problem involving multiple rates [↗](#)
- Solving a work problem using a rational equation [↗](#)
- Solving a distance, rate, time problem using a rational equation [↗](#)

### Ch.9-Roots and Radicals (63 topics, due on 11/28/2016)

### Section 9.1 (10 topics)

- Square root of a perfect square [↗](#)
- Using a calculator to approximate a square root [↗](#)
- Introduction to the Pythagorean Theorem [↗](#)
- Pythagorean Theorem [↗](#)
- Word problem involving the Pythagorean Theorem [↗](#)
- Finding all square roots of a number [↗](#)
- Square root of a rational perfect square [↗](#)
- Square roots of perfect squares with signs [↗](#)
- Cube root of an integer [↗](#)
- Finding  $n^{\text{th}}$  roots of perfect  $n^{\text{th}}$  powers with signs [↗](#)

### Section 9.2 (19 topics)

- Introduction to simplifying a radical expression with an even exponent [↗](#)
- Square root of a perfect square monomial [↗](#)
- Finding the  $n^{\text{th}}$  root of a perfect  $n^{\text{th}}$  power fraction
- Finding the  $n^{\text{th}}$  root of a perfect  $n^{\text{th}}$  power monomial [↗](#)
- Simplifying the square root of a whole number less than 100 [↗](#)
- Simplifying the square root of a whole number greater than 100 [↗](#)
- Simplifying a radical expression with an even exponent [↗](#)
- Introduction to simplifying a radical expression with an odd exponent
- Simplifying a radical expression with an odd exponent [↗](#)
- Simplifying a radical expression with two variables [↗](#)
- Simplifying a higher root of a whole number [↗](#)
- Introduction to simplifying a higher radical expression [↗](#)
- Simplifying a higher radical expression: Univariate [↗](#)
- Simplifying a higher radical expression: Multivariate [↗](#)
- Introduction to square root multiplication [↗](#)
- Square root multiplication: Basic [↗](#)
- Square root multiplication: Advanced [↗](#)
- Introduction to simplifying a product of radical expressions: Univariate [↗](#)
- Introduction to simplifying a product of higher roots [↗](#)

### Section 9.3 (8 topics)

- Introduction to square root addition or subtraction [↗](#)
- Square root addition or subtraction [↗](#)
- Square root addition or subtraction with three terms [↗](#)
- Introduction to simplifying a sum or difference of radical expressions: Univariate [↗](#)
- Simplifying a sum or difference of radical expressions: Univariate [↗](#)
- Simplifying a sum or difference of radical expressions: Multivariate [↗](#)
- Simplifying a sum or difference of higher roots [↗](#)
- Simplifying a sum or difference of higher radical expressions [↗](#)

### Section 9.4 (4 topics)

- Introduction to simplifying a product involving square roots using the distributive property [↗](#)
- Simplifying a product involving square roots using the distributive property: Basic [↗](#)
- Simplifying a product involving square roots using the distributive property: Advanced [↗](#)
- Special products of radical expressions: Conjugates and squaring [↗](#)

### Section 9.5 (9 topics)

- Simplifying a quotient of square roots [↗](#)
- Simplifying a quotient involving a sum or difference with a square root [↗](#)
- Rationalizing a denominator: Quotient involving square roots [↗](#)
- Rationalizing a denominator: Square root of a fraction [↗](#)
- Rationalizing a denominator: Quotient involving a monomial [↗](#)
- Rationalizing a denominator using conjugates: Integer numerator [↗](#)
- Rationalizing a denominator using conjugates: Square root in numerator [↗](#)
- Rationalizing a denominator using conjugates: Variable in denominator [↗](#)
- Rationalizing a denominator: Quotient involving a higher radical [↗](#)

### Section 9.6 (13 topics)

- Introduction to solving a radical equation [↗](#)
- Solving a radical equation that simplifies to a linear equation: One radical, basic [↗](#)
- Solving a radical equation that simplifies to a linear equation: One radical, advanced [↗](#)

- Solving a radical equation that simplifies to a linear equation: Two radicals [↗](#)
- Solving a radical equation with two radicals that simplifies to  $\sqrt{x} = a$  [↗](#)
- Solving a radical equation that simplifies to a quadratic equation: One radical, basic [↗](#)
- Solving a radical equation that simplifies to a quadratic equation: One radical, advanced [↗](#)
- Solving a radical equation with a quadratic expression under the radical [↗](#)
- Solving a radical equation that simplifies to a quadratic equation: Two radicals
- Solving an equation with a root index greater than 2: Problem type 1 [↗](#)
- Solving an equation with a root index greater than 2: Problem type 2 [↗](#)
- Word problem involving radical equations: Basic [↗](#)
- Word problem involving radical equations: Advanced [↗](#)

## Ch.10-Quadratic Equations (8 topics, due on 12/12/2016)

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### Section 10.1 (3 topics)

- Solving an equation of the form  $x^2 = a$  using the square root property [↗](#)
- Solving a quadratic equation using the square root property: Exact answers, basic [↗](#)
- Solving a quadratic equation using the square root property: Exact answers, advanced [↗](#)

### Section 10.2 (2 topics)

- Completing the square [↗](#)
- Solving a quadratic equation by completing the square: Exact answers [↗](#)

### Section 10.3 (3 topics)

- Applying the quadratic formula: Exact answers [↗](#)
- Applying the quadratic formula: Decimal answers [↗](#)
- Solving a word problem using a quadratic equation with irrational roots [↗](#)