




Faculty Review of OER eTextbook

Reviewed Work: [College Algebra](#)

Textbook Author: [Carl Stitz and Jeff Zeager](#)

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Course Number: CMAT 1213 College Algebra
[Louisiana Master Course Articulation Matrix](#)

Faculty Reviewer: Jared Eusea, Professor, Mathematics, River Parishes Community College

Faculty Review

Topic at Objective Level	Covered	To what degree		
		Below Avg.	Average	Above Avg.
Linear Equations				
Finding the least common denominator of an expression - prerequisite				
Recognizing linear equations				
Solving linear equations with integer coefficients				
Solving linear equations involving fractions				
Solving linear equations involving decimals				
Solving equations that lead to linear equations				
Quadratic Equations				
Simplifying radical expressions - prerequisite				
Factoring trinomials - prerequisite				
Solving quadratic equations by factoring and the zero product property				
Solving quadratic equations using the square root property				
Solving quadratic equations using the quadratic formula				
Using the discriminant to determine the type of solutions of a quadratic equation	X		X	
Other Types of Equations				
Simplifying expressions - prerequisite				
Solving higher-order polynomial equations				
Solving equations that are quadratic in form				
Solving equations involving single radicals				

Linear Inequalities				
Solving linear inequalities				
Solving three-part inequalities				
Reading Assessment Questions for etext section – Course Specific	N/A			
Absolute Value Equations and Inequalities				
Solving an absolute value equation	X	X		
Solving an absolute value “less than” inequality	X	X		
Solving an absolute value “greater than” inequality	X	X		
The Rectangular Coordinate System				
Finding the average of two numbers - prerequisite				
Simplifying radicals - prerequisite				
Plotting ordered pairs	X			X
Finding the midpoint of a line segment using the midpoint formula	X		X	
Finding the distance between two points using the distance formula	X		X	
Circles – optional				
Completing the square to form a perfect square trinomial - prerequisite	X	X		
Writing the standard form of an equation of a circle	X		X	
Sketching the graph of a circle given its equation in standard form	X	X		
Sketching the graph of a circle given its equation in general form				
Lines				
Solving a linear equation for the variable y - prerequisite	X	X		
Determining the slope of a line	X		X	
Sketching a line given a point and the slope	X		X	
Finding the equation of a line using the point-slope form	X		X	
Finding the equation of a line using the slope-intercept form	X	X		
Finding the equation of a line in standard form				
Finding the slope and the y-intercept of a line in standard form				
Sketching lines by plotting intercepts	X	X		
Finding the equation of a horizontal line and a vertical line	X	X		
Sketching a line given its equation in standard form				
Parallel and Perpendicular Lines				
Determining whether two lines are parallel, perpendicular, or neither				
Finding the equations of parallel and perpendicular lines				
Reading Assessment Questions for etext section – Course Specific	N/A			
Relations and Functions				
Simplifying algebraic expressions - prerequisite				

Understanding the definitions of relations and functions	X		X	
Determining whether equations represent functions	X	X		
Using function notation; Evaluating functions; Difference quotient	X		X	
Using the vertical line test	X		X	
Determining the domain of a function given the equation	X			X
Properties of a Function's Graph				
Given a function, evaluate $f(-x)$ - prerequisite	X	X		
Finding the average rate of change for a function	X	X		
Determining the intercepts of a function	X	X		
Determining the domain and range of a function from its graph	X		X	
Determining whether a function is increasing, decreasing, or constant	X			X
Determining relative maximum and relative minimum values of a function	X			X
Determining whether a function is even, odd, or neither	X		X	
Determining information about a function from a graph	X			X
Graphs of Basic Functions; Piecewise Functions				
Sketching the graphs of the basic functions	X			X
Analyzing piecewise-defined functions	X	X		
Transformations of Functions				
Using vertical shifts to graph functions	X			X
Using horizontal shifts to graph functions	X			X
Using combinations of vertical and horizontal shifts to graph functions	X		X	
Using combinations of reflections and either vertical or horizontal shifts to graph functions	X		X	
Using vertical stretches or vertical compressions to graph functions	X		X	
Using combinations of transformations to graph functions	X			X
Composite Functions				
Simplifying fractional expressions - prerequisite				
Finding combined functions and their domains	X		X	
Forming and evaluating composite functions	X			X
Determining the domain of composite functions	X		X	
One-to-One Functions; Inverse Functions				
Understanding the definition of a one-to-one function	X		X	
Determining whether a function is one-to-one using the horizontal line test	X		X	
Understanding and verifying inverse functions	X		X	
Sketching the graphs of inverse functions	X		X	
Finding the inverse of a one-to-one function	X		X	
Quadratic Functions				

Determining whether the graph of a quadratic function opens up or down	X	X		
Determining properties of a quadratic function in standard form and graph the function	X		X	
Determining properties of a quadratic function by using the vertex formula and graph the function	X		X	
Determining the equation of a quadratic function given its graph	X	X		
Applications and Modeling of Quadratic Functions				
Maximizing projectile motion functions				
Reading Assessment Questions for etext section – Course Specific	N/A			
The Graphs of Polynomial Functions				
Understanding the definition of a polynomial function	X		X	
Sketching the graphs of power functions using transformations	X	X		
Determining the end behavior of polynomial functions	X		X	
Determining the intercepts of a polynomial function	X		X	
Determining the real zeros of polynomial functions and their multiplicities	X			X
Sketching the graph of a polynomial function	X			X
Determining a possible equation of a polynomial function given its graph	X	X		
Rational Functions and Their Graphs				
Finding the domain and intercepts of rational functions	X		X	
Identifying vertical asymptotes	X			X
Identifying horizontal asymptotes	X			X
Using transformations to sketch the graphs of rational functions	X	X		
Sketching the graph of rational functions containing removable discontinuities	X	X		
Sketching rational functions	X			X
Exponential Functions				
Rewriting expressions in the exponential form - prerequisite	X	X		
Evaluating exponential expressions - prerequisite	X	X		
Sketching the graphs of exponential functions	X		X	
Determining possible equations of exponential functions given their graphs	X	X		
Sketching the graphs of exponential functions using transformations	X	X		
Solving exponential equations by relating the bases	X	X		
Solving applications of exponential functions	X	X		
Logarithmic Functions				
Changing equations between exponential form and logarithmic form	X		X	
Evaluating logarithmic expressions	X		X	
Using properties of logarithms to evaluate expressions	X		X	
Using the common and natural logarithms	X			X

Sketching the graphs of logarithmic functions using transformations	X	X		
Finding the domain of logarithmic functions	X	X		
Properties of Logarithms				
Using the product rule, quotient rule, and/or power rule for logarithms to expand and evaluate expressions	X		X	
Condensing logarithmic expressions and evaluating	X	X		
Solving logarithmic equations using the logarithm property of equality	X	X		
Using the change of base formula	X		X	
Exponential and Logarithmic Equations				
Evaluating exponential and logarithmic expressions using a calculator	X		X	
Solving exponential equations	X		X	
Solving logarithmic equations	X		X	
Applications of Exponential and Logarithmic Functions				
Solving compound interest applications	X		X	
Solving applications involving exponential growth and decay	X		X	
Systems of Linear Equations in Two Variables				
Verifying solutions to a system of linear equations in two variables	X	X		
Solving a system of linear equations using the substitution method	X	X		
Solving a system of linear equations using the elimination method	X	X		
Solving a system of linear equations using the substitution or elimination method	X	X		
Solving applied problems using a system of linear equation	X	X		
Total	90	35	39	16

Other Topics Covered	To what degree		
	Below Avg.	Average	Above Avg.
Sets of Numbers			X
Modeling with Functions		X	
Common Economic Functions	X		
Inequalities with Quadratic Functions		X	
Regression			X
Polynomial Division and Synthetic Division		X	
The Factor Theorem		X	
The Remainder Theorem		X	
Complex Zeros		X	
The Fundamental Theorem of Algebra		X	
Rational Inequalities and Applications			X
Exponential Inequalities		X	
Logarithmic Inequalities		X	

Introduction to Conics			X
Parabolas (as conics)			X
Ellipses (as conics)			X
Hyperbolas (as conics)			X
Systems of Linear Equations: Gaussian Elimination			X
Systems of Linear Equations: Augmented Matrices			X
Matrix Arithmetic			X
Systems of Linear Equations: Matrix Inverse			X
Determinants and Cramer's Rule			X
Partial Fraction Decomposition			X
Systems of Non-Linear Equations		X	
Systems of Inequalities		X	
Sequences			X
Summation Notation			X
Mathematical Induction			X
The Binomial Theorem			X

Notes:

- Topics of Linear Equations, Quadratic Equations (minus the discriminant), Other Types of Equations, and Linear Inequalities (minus interval notation) are mostly left to the reader of the text to already know how to do. Some are discussed during examples, but they are not covered in individual sections in the text.
- Standard form equation of a line is not talked about
- Parallel and perpendicular line definitions are mentioned in examples
- Applications of quadratics are done, but not specifically projectile motion
- Basic solving of systems is not taught, but it is shown in examples. Only the matrix technique is taught.



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Additional review of [College Algebra](#) based on the Open Textbooks Library/Network Rubric

Faculty Reviewer: Professor Eusa

Comprehensiveness

This textbook starts with the concepts of relations and functions and ends with the concepts of sequences and the binomial theorem.

Topics which I personally cover (solving linear equations, solving quadratic equations, solving other types of equations, and solving linear inequalities) are not provided as sections in

this textbook. Some may consider these concepts as a review from Elementary/Intermediate Algebra courses, but in our curriculum they are required to be taught.

Some concepts (solving using certain techniques of factoring, square root method, quadratic formula, u-substitution, and systems of equations) are briefly mentioned throughout the text in example problems. In these cases, they are mentioned as “should know already topics.”

However, even without the prerequisite material as sections in the textbook, this book is very detailed and a great book for all of the remaining material in College Algebra. It is a best suited textbook for students who will have to take PreCalculus and not really for those who only have to take College Algebra.

There is a table of contents at the start and an index at the end of the text. Both of these are useful to get around in the textbook.

Content Accuracy

The material that is in the textbook is accurate and I did not spot any errors.

Relevance Longevity

With this content I don't think it is possible to become obsolete. There will always be someone who will need a refresher of these concepts. As stated above in the Comprehensiveness section, the material in the textbook does require some previous knowledge in Elementary/Intermediate Algebra. The author notes that in certain places. If the author wanted, the book could be edited to include other concepts and prerequisite material by just adding chapters and sections either at the end of the textbook or maybe renumbering the chapters and putting the material at the start.

Clarity

The text information in each section is very clear and well put together. Throughout each section there are boxed out definitions and theorems which make the technical math terminology easy to spot.

Consistency

The concepts in this textbook are detailed. As stated previously, the terminology, notation and examples used in the textbook is at a higher than average level. Since the whole textbook is written this way it is consistent. The overall look of the textbook is also consistent with each section having the definitions boxed off and the examples worked out to elaborate on the concepts.

Modularity

The text is split into chapters and sections. Each section has pages of information with detailed examples worked in to elaborate on the concepts. There are numerous images, definition text blocks and a good amount of white space in the pages to allow for easy reading. After each section of material there is a whole section devoted to exercises followed by an answer section for checking the solution. It would be easy for each chapter and/or section to be assigned for reading and for the exercises to be extracted from the text for more practice to be assigned.

Organization Structure Flow

The concepts of the text are definitely presented in a way that makes sense to learning this material.

Interface

The text is easy to navigate from page to page. All images are easy to view electronically. There are also graphing calculator images that are easy to interpret. This adds a nice touch to the material in the textbook. Both the table of contents and the index has clickable links to the concepts in the textbook to make it easier to navigate. Unfortunately, some of the links in the index do not work. There are also links throughout the text that take you to an outside website for further reference material.

Grammatical Errors

I didn't spot any grammatical errors.

Cultural Relevance

The text is not culturally insensitive or offensive in any way.



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