

Unlock the Secrets to Solving Equations, Systems, Inequalities, Complex Numbers, Polynomials, and Progressions for Unprecedented Success!

5. Write the expression

$$\frac{-4 + 6i}{2 + 3i}$$

6. Find the values of x and y , where x and y are real numbers.

$$56 + (9x + y)i = 8x - 4i$$

: From Math Enigmas to Masterpieces

Do you find yourself grappling with math problems that appear as cryptic enigmas? Has the world of equations, systems, inequalities, complex numbers, polynomials, and progressions left you feeling overwhelmed?

Fear not! In this ultimate guide, we will unravel the mysteries behind these mathematical concepts and equip you with the knowledge and strategies to

conquer them with ease and confidence.



COLLEGE ALGEBRA, Vol. 2: Equations, Systems, Inequalities, Complex numbers, Polynomials, Progressions (THE COLLEGE ALGEBRA SERIES)

by Demetrios P. Kanoussis Ph.D ([Print Replica] Kindle Edition)

★★★★★ 5 out of 5

Language : English

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Screen Reader : Supported

Print length : 480 pages

Lending : Enabled



Section 1: Equations - Illuminating the Path to Solutions

Equations lie at the heart of solving mathematical problems. Learn how to transform algebraic equations into solvable forms and discover various techniques to crack even the most complex equations. From linear to quadratic, polynomial to exponential, no equation will be too daunting for you anymore!

Section 2: Systems - Unraveling the Interconnected Web of Variables

When one equation isn't enough, systems step in to save the day! Dive into the world of systems of equations, where multiple variables intertwine to create an intricate web. Master techniques such as substitution, elimination, and matrices to solve these interconnected puzzles like a true mathematician.

Section 3: Inequalities - Bridging the Gap between Values

Inequalities are the bridges that connect different numerical values. Explore the realms of linear and quadratic inequalities, discovering methods to solve them graphically and algebraically. Open your mind to the inequalities of life and confidently navigate their paths to success.

Section 4: Complex Numbers - Unlocking the Mystical Realm of Imaginary Numbers

Complex numbers may seem mysterious, but they hold immense power in solving mathematical problems. Delve into the realm of imaginary and complex numbers, understanding their properties and operations. You'll soon realize that there's nothing irrational about these numbers!

Section 5: Polynomials - Unveiling the Beauty of Algebraic Expressions

Polynomials are the flowers of algebra, with their vibrant and diverse forms. Learn to analyze, factorize, and simplify polynomial expressions, equipping yourself with essential tools to tackle polynomial equations. You'll soon realize that polynomials aren't just beautiful, but also practical!

Section 6: Progressions - Progressing Towards Mathematical Excellence

Progressions are the stepping stones to mathematical excellence. Discover arithmetic and geometric progressions, learning their formulas and properties. Unleash your analytical abilities as you dive deep into the world of sequences, series, and the magnificent wonders they hold.

: From Novice to Virtuoso

Congratulations! By delving into the realms of equations, systems, inequalities, complex numbers, polynomials, and progressions, you have unlocked the secret

gateway to mathematical virtuosity. Armed with this knowledge, you can now overcome any mathematical challenge that comes your way, transforming enigmas into masterpieces.

Remember, the path to success might be daunting, but with perseverance and a solid understanding of these mathematical concepts, you'll become a true math virtuoso!



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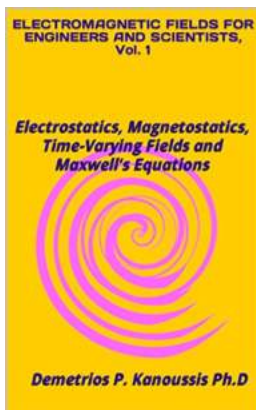
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Algebra, traditionally, deals with equations, systems of equations, inequalities, polynomials, etc, and develops methods and techniques which serve as an to higher Mathematics. This book was written to provide an essential help to all university students, in the areas of Mathematics, Physics and Engineering. A knowledge of introductory College Algebra is desirable, and can be found in my book, “College Algebra, Vol. 1”. This first volume, is devoted to set theory, set of real numbers, algebraic operations, ratios and proportions, inequalities, absolute values, identities, factorization and permanent inequalities. The current volume, “College Algebra, Vol. 2” is, by far, more advanced, and covers several topics on

higher degree equations and inequalities, systems of equations (linear and non linear), polynomials, complex numbers, progressions, logarithmic and exponential equations, etc. The book contains 19 chapters, as shown analytically in the table of contents. Chapter 1 is devoted to mappings and functions, Cartesian coordinates and graphs of functions. Chapter 2 treats first degree equations in one unknown, factored equations and equations involving absolute values. Chapter 3 covers first degree inequalities in one unknown and inequalities with absolute values. Chapter 4 concentrates on systems of linear equations, ($2 \times 2, 3 \times 3$, etc). Useful and powerful methods and techniques are developed, (method of substitution, Cramer's rule, Gauss's elimination method, the generalized method of substitution, etc), for the solution of linear systems and various special types of linear systems are considered. Graphical solution of linear systems and linear inequalities are studied in chapter 5, while rational equations and rational inequalities are considered in chapter 6. Irrational equations are studied in chapter 7. The theory of complex numbers and related properties are developed in chapter 8. Quadratic equations are studied in considerable depth and details in chapter 9, while the theory of quadratic trinomial is developed in chapter 10. Chapter 11 is devoted to equations and inequalities transformable to quadratic equations and inequalities, (for example, biquadratic equations, reciprocal equations, binomial and trinomial equations, etc). Non linear algebraic systems are considered in chapter 12. Polynomials in one variable and related theorems are studied in chapter 13, while chapter 14 is devoted to the general properties of polynomial equations, (theorem of conjugate roots, theorem of rational roots, theorem of irrational roots, Vieta's theorem, etc). Polynomials in several variables and related theorems are studied in chapter 15. Arithmetic, harmonic and geometric progressions and various applications are introduced in chapter 16. Logarithms, logarithmic equations and exponential equations are developed in chapter 17. Chapter 18 is devoted to the theory of conditional maxima and minima of functions of several variables. Finally, in chapter 19, we

study some special topics, related to the application of complex numbers in polynomials and trigonometry. The famous, Cote's theorem, is proved easily, with the aid of complex numbers. At the end of the book, there is a list of 256 supplementary problems, covering all topics developed in the book. The book contains, in total, 310 solved examples and 1050 problems for solution. The examples and the problems have been selected to help students develop a solid background in Algebra, broaden their knowledge and sharpen their analytical skills, and finally, prepare them to pursue successfully more advanced studies in Mathematics and Engineering. Hints or detailed instructions are given for the more involved problems, while answers to odd-numbered problems are provided, so that the students can check their progress and understating of the material studied.



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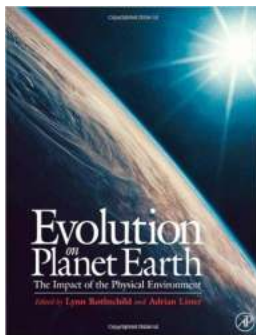
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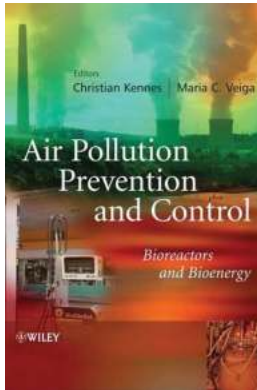
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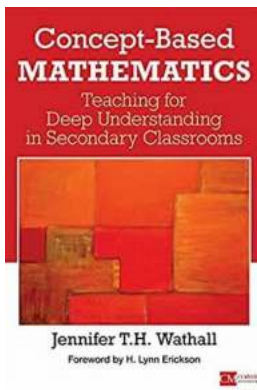
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