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| U.S.I.C.A.Course Outline/Syllabus | | |
|---|---|--|
| Grade/Course: ALGEBRA I 1200310 | | |
| Grade Level: 9 th High School | | |
| A)TEXT BOOK: Algebra Concepts and Applications by Jerry Cummins, Carol Mallory, Kay McClain, Yvonne Mojica, Jack Price, Glencoe Mcgraw-Hill. Hardcover, Published by Glencoe/Mcgraw-Hill Edition ISBN: 0078681707 – ISBN 13: 9780078681707 | | |
| ISBN-10: 0078607752 ISBN-13: 978-0078607752 | | |
| Order No.: 1 | Code:ALG1000 | Class Type:Online |
| Resources: Text book Teacher works CD Teacher interactive online Links Sky Conference Zoom, Skype, Social Media | Length: 1 year | Instructional Supports: Textbook, Magazines, Journals, Websites Links, ,Video Conference, Videos, Comprehensive Reading Plan, Zoom, Skype, Social Media |
| Area:Mathematics | Credits: 1 | Total Numbers of class hours:300 hrs |
| Type: Mandatory | Standards: Florida Standard www2.dadeschools.net | Prerequisite: Students must have successfully passed a pre-algebra or a general math class in middle/high school. |

B) Description:

This course is a full year, high school credit course that is intended for the student who has successfully mastered the core algebraic concepts covered in the prerequisite course, Pre-Algebra. The course introduces variables and expressions, equations, inequalities, functions, graphing, polynomials, factoring, quadratic equations, statistics and probability.

C) Objectives:

Upon completion of this course, the students will be able to:

1. Solve single variable, absolute value, and linear systems of equations.
2. Solve and graph single variable, absolute value, and linear inequalities.
3. Evaluate, solve, and graph linear and quadratic functions as well as conceptualize the relationship between the independent and dependent variable of a function.
4. Understand and know how to apply the distance, midpoint, and slope formulas as well as the Pythagorean theorem.
5. Form an equation of a line using the slope-intercept, point-slope and standard forms of a line.
6. Organize data in the form of a table or matrix; perform complex matrix operations such as multiplication, evaluating the determinant, and solving a system of linear equations using Cramer's Rule.
7. Apply basic fundamental rules of exponents.
8. Be able to construct a formula or equation necessary to solve algebraic word problems involving area, perimeter, and linear systems of equations, basic probability and statistical reasoning, distance, and compounding interest.
9. Identify patterns and make predictions from an orderly display of data using concepts of Probability and Statistics

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E. Methodology

| E)Academic Methodology: | |
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| Tests | 30% |
| Assignments | 50% |
| Final Exam | 20% |

F) Book Reference:

1. McDougalLittell Algebra 1: Applications, Equations, & Graphs [Hardcover] (Author)
2. Algebra Survival Guide Workbook: Thousands of Problems To Sharpen Skills and Enhance Understanding [Paperback] by Josh Rappaport(Author)
- 3 High School Algebra Tutor (High School Tutors Study Guides) [Paperback]
The Editors of REA (Author), Algebra Study Guides (Author), Staff of Research & Education Association (Author)

H) Web Reference:

<http://www.calculatorsoup.com/>
www.mathlinks.us
www.coolmath.com
www.mathpower.com/linkstu.htm
www.algebra.com
www.math.com

www.purplemath.com/modules/index.htm
www.softmath.com/links-to-algebra.html
www.emtech.net/math2.htm
www.homeschoolmath.net/online/algebra.php
www.webmath.com
<http://www.homeworksimplified.com>
www.homeschoolmath.net
<http://school.discoveryeducation.com/homeworkhelp/webmath/>
<http://www.cut-the-knot.org/content.shtml>
<http://tutorial.math.lamar.edu/Extras/AlgebraTrigReview/AlgebraTrigIntro.aspx>
<http://www.sosmath.com/>
<http://www.ams.org/mathscinet/>
<http://www.aaamath.com/>
<http://www.algebrahelp.com>

I. Journals:

Advances in Applied Mathematics
Advances in Difference Equations
Advances in Differential Equations
Advances in Geometry
Advances in Mathematics
Advances in Theoretical and Mathematical Physics
Algebra & Number Theory
Algebra Colloquium
Algebra Universalis
Algebraic & Geometric Topology
American Journal of Mathematics
American Mathematical Monthly
Analysis and Applications
The Analyst

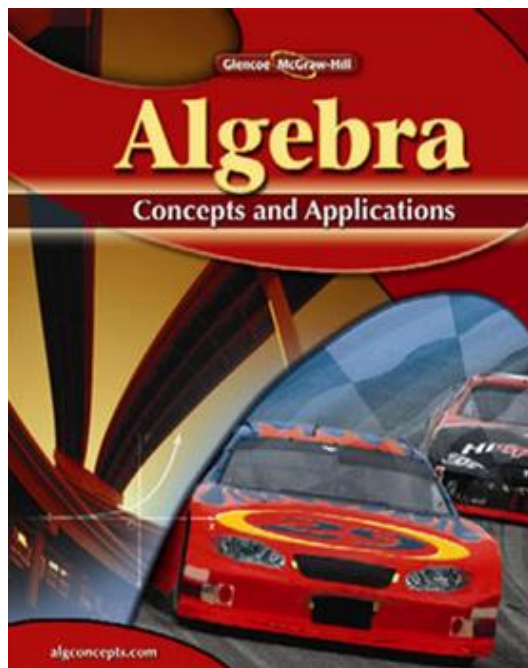
J. Magazines:

Math Horizons
Millennium Mathematics

K. Organizations:

National Council of Teachers of Mathematics (N.C.T.M.)

BOOK:



Text Book: ALGEBRA I

Course: No. 1200310

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