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| http://www.curricunet.com/Cabrillo/images/cabrillo_logo.jpg | **MATH 152B Course Outline** |
| **4 Unit(s)** **4 Hour(s) Lecture** **4 Hour(s) Laboratory** | |
| **MATH 152B** | **Intermediate Algebra - Second Half** |
|  | Presents the second half of Intermediate Algebra and is intended only for students who have successfully completed MATH 152A. When taken after MATH 152A, satisfies Cabrillo's math graduation requirement for Associate of Arts and Associate of Science Degree. Covers radical, exponential, and logarithmic expressions and equations, composition and inverse of functions, graphs, and applications. Offered spring only. May not be taken pass/no pass. |
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| **Requisites** | **PREREQUISITE(S):**   * MATH 152A |
| **Recommended Preparation** | * Eligibility for ENGL 100 and READ 100 |
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| **Core Cabrillo Competencies** | Communication - reading, writing, listening, speaking and/or conversing  Critical Thinking and Information Competency - analysis, computation, research, problem solving  Global Awareness - an appreciation of scientific processes, global systems and civics, and artistic variety  Personal Responsibility and Professional Development - self-management and self-awareness, social and physical wellness, workplace skills |
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| **Learning Outcomes** | 1. Create, analyze, and solve a mathematical model describing a real life application. 2. Analyze and interpret mathematical and physical meaning from graphs of quadratic, exponential, and logarithmic functions. 3. Demonstrate algebraic literacy for subsequent math courses. |
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| **Objectives** | 1. Manipulate radical, quadratic, exponential, and logarithmic expressions.   2. Solve radical, quadratic, exponential, and logarithmic equations.   3. Model a physical problem using algebraic functions and equations.   4. Find the inverse of a one-to-one function and recognize the inverse relationship through composition. |
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| **Content** | 1. Addition, subtraction, multiplication, and division of radical expressions. 2. Rationalizing the numerator or denominator. 3. Rational exponents and their relationship to radical form. 4. Radical equations that produce a second degree-equation. 5. Extraneous solutions. 6. Application problems involving the Pythagorean Theorem. 7. Radical expressions with a negative radicand written in equivalent a + bi form. 8. Complex numbers: adding, subtracting, multiplying, or dividing. 9. Conjugates for dividing complex numbers. 10. Powers of i. 11. Quadratic functions: graphing by finding the vertex, x- and y-intercepts. 12. Quadratic formula to find the exact values of a quadratic equation with irrational or imaginary solutions. Approximate the irrational solutions. 13. Quadratic models: maximum or minimum values, and the intercepts. 14. Application problems involving quadratic equations. 15. Discriminant in the quadratic formula. 16. Function composition. 17. One-to-one functions: looking at their graphs. 18. Equation of the inverse functions for linear, exponential, and logarithmic functions and show their relationship graphically. 19. Basic exponential and logarithmic equations such as 2^x = 32 and log base 5 of x = 2. 20. Basic logarithmic expressions, and conversion between logarithmic and exponential form. 21. Exponential equations that require the use of logarithms to solve. 22. Logarithmic equations requiring the properties of logarithms to condense. 23. Base e (ln x ) and base 10 (log x) logarithms. 24. Exponential and logarithmic expressions: equivalent forms to solve for a variable. 25. Graphs of basic exponential and logarithmic functions. 26. Graphical relationship between exponential and logarithmic functions. 27. Application problem involving a given exponential or logarithmic model. 28. Change of base in a logarithmic expression. 29. Model for natural growth and decay problems. 30. Graphs of circles from an equation using center and radius. 31. Graphs of parabolas given by f(x) = ax^2 + bx + c or x = ay^2 + by + c using the vertex and another point. 32. Identification of conic sections from second-degree equations with no xy term. 33. Distance between two points. 34. Midpoint between two points. 35. Nonlinear systems of equations: solving algebraically and graphically. 36. Graphs of ellipses and hyperbolas from equations. |
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| **Assignments** | **Out-of-class Assignments** 1. Analyze and study pertinent text material, solved examples and lecture notes.  2. Apply the principles and skills covered in class by solving related problems. 3. Synthesize course material in preparation for exams. **In-class Assignments** 1. Group work. 2. Quizzes and Exams.  Students are expected to spend 8.00 hours in class and 6.50 hours outside of class. |
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| **Evaluation** | **Typical classroom assessment techniques**  Exams/Tests Quizzes  **Required Assignments**   * Home Work |
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| **Grading** | Letter Grade Only |
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| **Representative Texts** |  Blitzer, Robert (2009). *Intermediate Algebra* (5th/e). Upper Saddle River Prentice Hall. ISBN: 0136007627   Angel, Allen, R. (2008). *Intermediate Algebra* (7th/e). Upper Saddle River Prentice Hall. ISBN: 0132383578 |
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| **History** | Approved: 09/02/2009 by Renee Kilmer |
| CID: 2877 | |