SUBJECTS OF THE FIRST MIDTERM

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For announcements about the course, homeworks, results of your examinations, etc., see the COURSE WEB PAGE:

  
  web page of the textbook for some supplements: [http://media.pearsoncmg.com/aw/aw_thomas_series_cw/tuc02/tuc02_student_launch.html](http://media.pearsoncmg.com/aw/aw_thomas_series_cw/tuc02/tuc02_student_launch.html)

- **GRADING**: 
  
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<thead>
<tr>
<th>First Midterm</th>
<th>Second Midterm</th>
<th>Final Examination</th>
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  **FIRST MIDTERM DATE**: 31th July, 2013 Wednesday
  
  **Time**: 09:30 **Classroom**: B253

- **SUBJECTS OF THE FIRST MIDTERM.** All of the first four chapters of your textbook (except Sections 3.10, 4.5, 4.6, 4.7 and 4.8), Section 7.3 of Chapter 7 and some appendices of your textbook:
  
  - **Preliminaries**: Real Numbers and The Real Line; Mathematical Induction; Theory of Real Numbers; Complex Numbers; Lines, Circles and Parabolas; Conic Sections; Basic Algebra, Geometry and Trigonometry Formulas. → **Appendices A.1, A.2, A.3, A.4, A.7 and A.8.**
  
  - **Functions**: Functions and Their Graphs; Combining Functions, Shifting and Scaling Graphs; Graphing with Calculators and Computers; Composition of Functions; Polynomial Functions; Rational Functions; Algebraic Functions; Transcendental Functions; Trigonometric Functions; Exponential Functions; Inverse Functions; Logarithms; Inverse Trigonometric Functions; Hyperbolic Functions; Inverse Hyperbolic Functions. → **All of Chapter 1 and Section 7.3.**
  
  - **Limits and Continuity**: Rates of Change and Tangents to Curves; Limit of a Function and Limit Laws; Precise Definition of a Limit; Proofs of Limit Theorems; One-Sided Limits; Continuity; Limits Involving Infinity; Asymptotes of Graphs. → **All of Chapter 2 and Appendix A.5.**
  
  - **Differentiation**: Tangents and the Derivative at a Point; The Derivative as a Function; Differentiation Rules; The Derivative as a Rate of Change; Linearization and Differentials; Derivatives of Trigonometric Functions; The Chain Rule; Implicit Differentiation; Derivatives of Inverse Functions and Logarithms; Derivatives of Inverse Trigonometric Functions; Derivatives of Hyperbolic and Inverse Hyperbolic Functions. → **All of Chapter 3 (except Section 3.10), and Section 7.3.**
  
  - **Applications of Derivatives**: Extreme Values of Functions; The Mean Value Theorem; Monotonic Functions and the First Derivative Test; Concavity and Curve Sketching; → **Sections 4.1, 4.2, 4.3 and 4.4 of Chapter 4.**

- **ANSWERS TO PROBLEMS.** We have given the answers to the problems of your textbook. Take a copy of the handwritten notes that Celal Cem Sarıoğlu has given in the previous year; it contains some summary and detailed solutions to many problems. These well written answers to the problems will show you how you must write your answers in a mathematically correct way. He has also given notes on graphing functions that contains many graphing examples.

- **EXAMINATIONS OF THE PREVIOUS THREE YEARS.** We have given a copy of the previous four years’ midterms and final examinations with detailed answers. Take a copy of these. Make yourself a two and a half hour examination from these midterms. Then check the answers to learn how you shall write your answers by making enough explanations.