



DEPARTMENT OF THE ARMY
UNITED STATES MILITARY ACADEMY

West Point, New York 10996-1786

MADN-MATH

August 9, 2011

MEMORANDUM FOR the Cadet Class of 2015

SUBJECT: Fundamental Concepts Exam

1. Students enter USMA with different backgrounds in mathematics. Your success in college level math, science, and engineering, all topics you will study while at West Point, depends on a firm understanding of pre-calculus material. The Department of Mathematical Sciences has identified those skills and concepts that all students entering the core math program must possess in order to effectively understand the concepts presented in the math, science, and engineering program. These skills can be found by navigating to the link that is directly below the link you press to get to this location. This link is called Required Knowledge for Entering Cadets. Our experience indicates that if you lack a good understanding of these skills, you will most likely not perform to your full potential in subsequent math, science, and engineering courses. You can find a list of properties and formulas you are expected to know at the website

(<http://www.dean.usma.edu/math/courses/MA103/ProspectiveStudents/CandidateWeb.htm>). The formulas, which can be found at the Useful Formulas link, should be committed to memory. You will also note on this website that there are numerous fundamental concepts exams along with the solutions to each. You should seek remedial assistance in any area in which you feel weak.

2. In order to help assess a student's knowledge of fundamental skills and concepts, the Department of Mathematical Sciences administers a Fundamental Concept Exam (FCE). Students who do not show the required proficiency may be placed in a different core mathematics track (MA100 / MA101 Precalculus Mathematics sequence or other scheduled remediation such as repeating MA103). Students enrolled in MA100 / MA101 fall a semester behind in their mathematics studies and must "catch up" at some point; most are usually enrolled in a mathematics course during summer school in order to catch up.

3. The first opportunity for students to take the FCE is in Cadet Basic Training; this first exam (FCE 1) is also called the Summer Gateway Exam. Cadets who earn an 80% or greater on this multiple choice exam will have met the fundamental concepts proficiency discussed in paragraph 1 and will not be required to take any future FCEs. Note that this and the following paragraphs do not pertain to those cadets who are enrolled in the advanced mathematics program.

4. Those students who have not achieved an 80% or greater on the summer Gateway exam will be required to take additional FCEs until they score at least an 80%.

5. FCE 2 in September is weighted 100 points. (Note: Students who have earned at least an 80% on the FCE (Summer Gateway) given in Cadet Basic Training may elect not to take the exam in September.) These students will have 100 fewer total points in the course, 1900 instead of 2000.) All students who have met the fundamental skills requirement defined above may retake any iteration of the exam to improve their score.

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6. The requirement to meet the defined levels of proficiency on fundamental skills should not be taken lightly. Because many students have a difficult time with fundamental skills, I encourage you to start early in preparing for it. Time spent early preparing will save you much time later in the semester when you need it for other things.

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