

MINDSET FOR COLLEGE MATH:

College math courses require understanding concepts, not simply memorizing formulas. **You need to understand the *why* and *how* behind the formulas if you want to do well.** This level of understanding is difficult to achieve and you should expect to be confused at times. Using good strategies and campus resources will help you move beyond confusion to success.

HOW TO STUDY IN A MATH CLASS:

- **Before starting a new course, review the math from your previous course.**
- **Never let yourself fall behind.** If the class seems too easy at first, remember that all math classes start with some review, but at a certain point they move into high gear.
- Think of math as time-consuming rather than difficult. This will give you a sense of control over your performance in the course.
- Read or at least scan the chapter before your lecture and read it again afterwards. **But don't read your math book with the goal of memorizing it;** instead, think of it as a reference book that will help you understand the math problems.
- As you read your text, **do the computations along with the book.**
- **During lecture, write down everything the professor writes down,** and if he/she uses different colors of ink, do likewise. Even if you think you understand a problem, write down each step. You may find yourself confused later on and need those notes.
- **It's fine to memorize math symbols and definitions, but try to *understand* the underlying processes and concepts.** When you look at a process, ask yourself the purpose for each step. Think of analogies or try explaining a concept to a friend or family member.
- **Still confused? Try some of the following:** a review book, a tutor, the T.A., or the instructor. **Tutors can be extremely helpful,** especially if you use them early in the term. Free tutoring is available through a variety of programs on campus: Math Learning Center (Physical Science 104), or visit <http://www.caspercollege.edu/schools/sci/math-lab> for more information.

HOMEWORK:

- **Do your math homework, as soon after class as possible** while the concepts are still fresh. Never wait to do your homework, promising yourself you will catch up on the weekend. The weekend might be a great time to write an essay, but during the week keep up with your math.
- **Begin by reviewing your lecture notes.** Take a separate sheet of paper and try to work the example problems on your own. Check your answers with the ones in your notes.
- **Try sitting down with a classmate to do your homework, possibly in the Math Learning Center.** Work on your own and consult each other only as needed. If you can't

get together in person with a classmate, at least share phone numbers so you will have someone to contact if you get confused while doing your homework.

- **Check your first answers in a given section** before doing a whole set of problems. When you make a mistake, determine the source of the error, and make a mental note of a method for avoiding that kind of error in the future. If you're stuck, consult with another student or a tutor.
- When working on homework, try to do *all* of the assigned problems. If pressed for times, do at least a representative sampling of each kind of problem.
- **Read each problem slowly and carefully**, running a pencil under the words to make sure you notice and understand each word. (Example: By how much did her speed *exceed* his?)
- **Summarize word problems** by drawing a diagram or setting up the information in a table. Sort out the problem into *given*, *find*, *need*.
- For a very difficult word problem or when you forget a formula, **substitute simpler numbers**. Once you understand the nature of the problem, use the same process with the actual numbers.
- At the end of a homework session, mentally **review** the most important concepts.

STUDYING FOR MATH TESTS :

- **Your first test will be easiest, but don't get over confident.** You may need that *A* on the first test in order to offset lower grades later in the semester.
- Remember that doing well on homework and/or quizzes is no guarantee of doing well on an exam. Tests can be more challenging than a sequence of quizzes for two reasons: a test is usually harder to finish in time and the problems are presented in a random order. This means you must be able to *quickly* decide the nature of a problem and the best approach.
- **Write up a summary sheet of key formulas and definitions.**
- **Attend any review sessions** and take plenty of notes.
- **Review all of your quizzes and rework the problems.**
- **Study for your math test by working mixed sets of problems.** Use chapter reviews, old tests the professor has made available, and/or review books. It's not enough to be *familiar* with the material; you should have worked so many problems that the material is now *easy* for you.
- **Do some timed practice tests** or sets of problems. Try to find some application problems with difficult or confusing wording (you will need practice in deciphering this kind of problem). In other words, mimic the testing situation as closely as you can while you work on practice exams.
- After doing several *full* practice tests, you might want to expose yourself to the greatest possible variety of word problems by **doing only the first step of additional problems**.
- **During your practice tests, check all results**, just as you will during the test. Use some of the following methods: Plug your answer back into the problem to make sure it works. Estimate the answer to make sure you are in the right ballpark. Double check units and positive and negative signs. If time allows, rework some of the problems using an alternative method.

TAKING MATH TESTS:

- **Get plenty of sleep the night before the test.** Sleep is essential for higher order thinking.
- When you first get the test, write down any formulas you might forget. Next, look at the number of points given for each problem and think about how to get the most points in the quickest amount of time. Apportion your time and **begin work on the easiest problems.**
- Expect a few extremely difficult problems and don't let them throw you off balance. Return to them at the end of the test, by which time you may have gained new insights. Clearly write out each step so even if miss the answer you may earn partial credit.

AFTER THE TEST: When your test is returned, **rework any problems you missed** and find out what went wrong. (This is analogous to a sports team preparing for an upcoming game by watching the tape of an earlier game.)