UNBC Academic Success Centre

Math Study Skills

Read what the instructor will be lecturing on before you go to class.

Read slowly
Reading mathematics is not like reading a novel or even history. Speed reading techniques are not appropriate. Every word and symbol is important to the meaning. Do not skip the symbolic part of the text. This is often the most important part. If you do not understand a symbol, look in the glossary or in the earlier part of the text. Symbols are often explained when they are first introduced. If you still can not find out what a symbol means, ASK!

Read with a pencil in hand
Every time the author does a problem, do it on your own—either before or after you read his or her explanation. This makes sure you know what steps have been shown and, more importantly, which ones were omitted.

If there is something you do not understand
Try to formulate a question about it. Often if you can ask a specific question, you can answer it yourself. If you can't answer it, you know what part of the instructor's lecture requires your complete attention. Your question is ready if the lecture does not clear up your misunderstanding.

Understand the concepts

Don't be satisfied with vague ideas about how to work problems. Do the examples yourself, understand the concept illustrated, then try making up your own examples. Keep in mind that the questions on the exam may be very different from the example in the book.

Practice
Be sure you understand the concepts before you practice. Then practice will help you remember and give you confidence in your mastery. Force yourself to remember the methods as you work problems; don't look back in the book. Mathematics is not a spectator sport. The only way to learn mathematics is by doing it.

Keep up with assignments (whether they are graded or not).
The pace is much faster in college and keeping up to date with assignments

helps you to better understand what is going on in class. Following are some suggestions for getting the most out of the time you spend on homework.

Understand the purpose of homework

Homework in mathematics classes is assigned to help you understand certain concepts and to help you build certain skills. Homework is not assigned to you because it is important to get the right answers. Your instructor already knows the answers.

Try to understand the process, not the specific problem.
Classify problems in the assignment by problem type. Although this is often done for you by the directions, it is not always. Do each assigned problem and then check it in the back of the book. Try to figure out why you missed the ones you did instead of just working toward the answer. A similar problem may be on a test or quiz.

Mark homework problems you do not understand.
Get help with them before the next class. The next lecture may build on a concept or skill you did not understand in the homework. When you do get help, make notes on what you learned, so that you can study them for any upcoming tests.

Look back.
Before closing the book, over the assignment and try to explain to yourself what the assignment was about, what each kind of problem was asking, how you got the answers and what the answers tell you. This process will help you understand the material and will help you discover what you don't understand.

Keep good notes.
Keep your homework in a convenient and neat notebook so that you will be able to find questions or difficulties you have quickly and easily. Consider a note-taking system to help you. Effective note-taking can provide an invaluable study guide for tests.

Ask questions.
Do not hesitate to ask questions. Ask your instructor, a tutor, or peer for help after you have tried to pull class notes and textbook explanations together for review and still don't understand. Write down specific problems so you have them ready; don't be vague and say you just don't understand.

Don't hesitate.
Get help right away. Tutoring and help sessions are available. The longer you wait before getting help, the harder it will be to get caught up. Most of the time when you feel lost, it is just one concept that you are missing, so get help quickly. One missed concept in a math class can make the rest of your math career a hardship. Don't feel embarrassed to ask questions and get help; even the best mathematicians have felt completely lost at some point.

Suggestions for Preparing for and Taking Math Tests

1. Keep a list of things to remember - problems stressed by the instructor, definitions, terms, diagrams and graphs, formulas.
2. Keep up with the work - some courses can be passed by cramming, but math isn't one of them. Skills in math, as in sports, must be practiced.
3. Study copies of old exams, chapter tests from the book, or make up your own. Then practice them with the same limits as the real exam.
4. Get a good night's sleep before the test so that you are rested and alert; a quick review before the test should be a summary only.
5. Arrive at the test early so that you can be relaxed when the exam begins.
6. Quickly look over the test and budget your time - don't spend too much time on any single problem or section of the test.
7. Do some work on each problem - try to work at least part of each problem because partial credit is better than none.
8. Check your answers and look for careless mistakes during the last few minutes of your test time (budget this important time).

Suggestions for Word Problems

Solving problems is a practical art, like swimming or playing the piano; you can only learn it by imitation and practice. There is no magic key that opens all doors and solves all problems. The major goal in solving word problems is to translate the written words into a mathematical equation that we know how to solve.

1. Read the problem for a general sense of what it is about; sometimes putting it into your own words will help.
2. Then reread it to pick out specific information:
    a. What you are asked to find? Usually you choose a variable to represent one unknown and other unknowns will be represented in terms of the first.
    b. What information is given? Make a list, then organize the list into a diagram, picture, or chart.
    c. What are the relationships among the information given and the information to be found? Sometimes it helps to think of similar problems from arithmetic and the formulas needed there.

3. Translate the information into an equation - get into the habit of doing this for easy problems. The longer problems will not seem as difficult.
4. Solve the equation you have written and label your answer - then find any other quantities to be found.
5. Return to the original problem and check your answer(s). Do they make sense in the original problem and answer the question posed in the problem?

Source:http://students.berkeley.edu/apa/Staff%20Training%20and%20Development/handouts/Math_Study_Skills.html

Adapted from On Your Own in College by William C. Resnick and David H. Heller.