

## TIPS ON STUDYING MATH

Essential to math study are 1) a good foundation in basic math principles, 2) the ability to analyze relevant information, and 3) an understanding of the purpose of symbols and formulas and what they represent

### Math Background

A common cause of math study problems is failure to master elementary math principles. If you're not sure what your deficiencies are, seek a diagnostic tool, ask your professor, or take the chapter quizzes from a math text one level below your current class. If you score below 80%, you should work on that skill. Then do one or more of the following:

- Drill the weak areas from a lower level text. The library has many textbooks. Work simple, fundamental problems to check your understanding
- Spot review, using math texts that you can refer to as needed
- Get a tutor.
- Resolve that in the future you'll avoid giving superficial treatment to your math study

### Solving Math Problems

Fundamental to math study is problem solving, a two-step process involving analysis and computation. The most essential process in problem-solving is analysis. Simply having the ability to compute results is not sufficient; you must be able to analyze what you're doing. When solving math problems, follow the steps below for maximum understanding and accuracy:

- Read the problem carefully
- Reread and analyze the problem, noting what's given, what's implied, and what's to be found
- Translate the information into mathematical symbols or into your own words
- Make a tentative sketch of the problem
- Analyze the information you have and set up an equation
- Make an educated guess at the answer
- Solve the equation, one step at a time, using accepted mathematical procedures
- ALWAYS check for errors by checking your answer:
  - a) against your educated guess
  - b) against the actual answer when available
  - c) by inserting the answer into the problem
  - d) by re-working the problem, using the same or an alternate method
  - e) by checking the solution against the information in the original problem

### Symbols and Formulas in Math Study

Symbols and formulas are a form of shorthand; they express complicated ideas in concise terms. It's not enough to simply memorize them; you should understand the principles and concepts that lie behind them

When you must memorize them, use 3 X 5 index cards. Write the symbol or formula on one side of the card and other information on the reverse side. Go through these regularly, but be sure to shuffle them periodically.

### Taking Math Lecture Notes

- Preview the chapter before class— important but not time consuming
  - Glance over chapter – read intro, summary, section headings, diagrams, look over problems at the end
  - This will serve as a base for anchoring the new information presented in class.
- Review notes from previous lectures
- It's crucial to keep up—since math builds on sequentially more difficult steps.
- Copy everything written on the board including graphs, diagrams, or charts
- Write explanatory remarks about the problem. Note particular conditions of the problem.

- Copy every step. Note how to get from one step to another. Note why the approach was taken.
- If you miss something, write what you can and fill in missing material later. Don't stop writing.
- Sit next to someone who takes good notes. Share.
- Concentrate on LEARNING in class, don't just record information and attempt to learn it later.
- Ask questions in class when you don't understand.
- Rework your notes ASAP after class. This decreases the amount of forgetting and aids in transferring info to long-term memory.
  - Fill in missing info before you forget, or use text, students, instructor to clear up confusion
  - Use margins or the back of the opposite page to summarize and list key terms or formulas
    - You can also use back of page to take notes from the text, thus supplementing your lecture notes and creating an integrated study source.
  - Review notes regularly, particularly just before and after class.

### Reading Math Textbooks

- Preview, take notes in class, then read carefully
- Understand each concept as you go, or you may be wasting your time.
- Take notes on new definitions and symbols
- Translate abstract formulas into your own verbal explanation
- Analyze the sample problems explaining each step in your own words and drawing diagrams to accompany the explanations.
- Close book – rework the examples in your own terms.
- Relate new concepts and principles to those you've learned previously—look for similarities and differences.
- Stop periodically to recite the material to yourself.
- If your class lecture provides a good overall structure, use the text to clarify and supplement your lecture notes.
- Mark book sparingly.
- Work examples until you're sure of the concepts. Over-learn—practice beyond the point of mastery.
- Avoid superficial reading and haphazard marking. Read from a problem-solving point of view
- Use a different text book for additional problems or a different presentation of the material

### To Review for Math Tests

- Look over texts and notes. Make a list of important data you still don't know. Learn it! Note similarities and differences in concepts between and within chapters.
- Work sample problems without referring to examples. Over-learn—practice beyond the point of mastery.
- Review problems assigned as homework. Go over previous tests. Rework any problems you missed.
- Prepare a pre-test and test under test-like conditions-timed, no notes, etc.
- Pretend you are allowed to take one sheet of notes with you to the test. Make one and memorized it. It's your "mental cheat sheet".

### General Math Tips

- Learning math requires studying 8–10 hours per week for a 3 credit class – and at least 30 minutes daily.
- Seek help early! Utilize available resources. Then make a commitment to yourself to keep up to date.
- If problems with math (particularly with word problems and concepts), explore reading comprehension as a possible cause. An LSS counselor can help plan an approach to finding solutions

Adapted from RASSL/UT-Austin

References: Nolting, Paul D., *Winning at Math*, 4th edition

[www.cyl.ua.edu/CTLStudyAids/StudySkillsFlyers/Math/mathguidelinesforstudy.htm](http://www.cyl.ua.edu/CTLStudyAids/StudySkillsFlyers/Math/mathguidelinesforstudy.htm)

[www.txstate.edu/slac/math/skills/StudySki.html](http://www.txstate.edu/slac/math/skills/StudySki.html)

<http://Euler.slu.edu/Dept/SuccessinMath.html>

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