

# Problem Solving

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## I. Problem Solving - Definition

- A. Characteristics of a Successful problem solver.
  - 1. positive attitude
  - 2. persistence
  - 3. reads for understanding
  - 4. uses a systematic method
  - 5. works carefully
  - 6. reviews work
- B. Systematic methods of working a problem.
  - 1. trial and error
  - 2. make a model
  - 3. simplification
  - 4. look for patterns
  - 5. deduction
  - 6. computation

## II. Note-taking Strategies

- A. Read or survey before class.
- B. Organize notes to mark concepts as well as corresponding examples.
  - 1. Two column system
  - 2. Boxes, different colors, etc.
- C. Record all important concepts, formulas, examples. (Don't give up!)
- D. Review within 24 hours.
  - 1. Write key words in recall column
  - 2. Put lecturer's examples on index cards.  
front-concept; back-example

## III. Read/Study Strategies

- C. Review last chapter.
- D. Review current lecture.
- E. Survey current chapter and assigned problems.
- F. Read the new chapter ONE section at a time.
  - 1. Work the sample problems.
  - 2. Work related homework problems.
  - 3. Write your questions down for TA or study group.
- G. Review entire chapter.
  - 1. Make note cards.

## IV. Study Groups

8. Organization
  1. 5-6 students in a group is ideal.
  2. Decide on quiet meeting place.
  3. Decide on weekly meeting time.
9. Conducting a study group
  1. Compare lecture notes.
  2. Take turns explaining concepts and problems.
  3. Assign people to follow up on questions with TA.
  4. Write a summary sheet.

## V. Test Taking Skills

10. Studying for Tests VS Quizzes and Homework
11. Activities
  1. Understand the concepts taught.
  2. Practice recall of these concepts.
  3. Work a wide variety of problems. (Without looking.)
    - text examples
    - homework problems
    - construct new versions of same problems
    - supplementary texts
  4. Review old index cards; make new ones.
  5. Work old test.

## VI. Avoiding Test Anxiety

12. General test taking skills are especially important.
  1. Good night's sleep.
  2. Small reward.
  3. Relax before test.
  4. Avoid those who are nervous.
  5. Replace negative thoughts with positive thoughts.
  6. Survey test and plan order for answering problems.

*(Adapted from Hudspeth, & Hirsch, Studying Mathematics. Kendall/ Hunt Publishing Co., Dubuque, IA.. 1982.)*

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