



# Problem-solving tests

The single best way to prepare for problem-solving tests is to solve problems—lots of them. Be sure to work problems not previously assigned.

## Review

Another important part of preparing involves reviewing class material. Go over class notes and reading. Identify the major concepts and formulas from both. Highlight topics and problems your instructor emphasized. Note why these

points are important. Look for fundamental problem types. Typically a course has recognizable groups or types of problems. Make sure you can tell them apart and know how to approach them.

## Solve problems

Analyze problems by answering the following questions: What concepts, formulas, rules and methods can I apply? How do I begin? Have I seen this problem before? Is it like other problems? Could I work this problem another way or simplify what I did? How does my solution compare with examples from the book and class?

problems out of sequence. For example, work a problem from Chapter 7, Chapter 5, then Chapter 10. This will reveal how problems relate to each other and simulate the test-taking experience.

Next to each problem-solving step, write what you did. Spell out what you did and why in your own words. This will make problem-solving techniques more concrete in your mind. Practice working

Work with a time limit. Aim to solve as many problems as you will have on the test within the test time limit (i.e., 30 problems in 50 minutes).

## Taking the test

Write down what you need. Before starting the test, turn it over and jot down formulas, relationships, definitions, etc. Review the test, skimming questions and developing a plan for your work. If any thoughts come to you, write them in the margin.

Create a practice test. Try cutting and pasting a test together using homework questions and similar problems from your textbook.

Start with easier problems. Begin with those for which you can identify a solution method quickly. This will reduce anxiety and facilitate clear thinking. Watch the clock. Allow more time for high point value problems, and reserve time at the end for reviewing your work and fixing issues.

understand the problem. Mark key words, identify the givens and unknowns in your own words, sketch a diagram or picture of the problem, or try to anticipate the form & characteristics of the solution. For complex problems, list the formulas you consider relevant to the solution, then decide which you will need to get started.

Try all test problems. If your mind goes blank, relax for a moment and contemplate the problem. Or mark it and return to it later. For more difficult questions, have a plan. Be certain that you

If you still have no solution method, try these tips. If possible, write out an equation to express the relationships among some or all the givens and unknowns. Think back to similar practice problems. Work backwards. Ask yourself, "What do I need to get the answer?" Solve a simpler form of the problem or substitute simple numbers for unknowns; try to reduce the amount of abstract thinking required. Break a problem into a series of smaller problems, then work each part. Guess an



answer and then check it. The checking process may suggest a solution method.

If all else fails, mark the problem and return to it later. You may find clues in subsequent

### **Analyzing graded tests**

Read the comments and suggestions from your professor. Locate the source of the test questions. Did they come from the lectures, the textbook, or homework? Note any alterations made to questions. How were the problems changed from those in the notes, text, and homework?

Determine the source of your errors and make a plan for next time. Ask yourself these questions to pinpoint what you lost points for:

Did your errors result from carelessness? For example, did you fail to carry a negative sign from one step to another? Did you misread questions?

problems that will help you find a solution. If you're running out of time and still have problems remaining, set the problem up in a solution plan. This means you'll have a chance of receiving partial credit.

For example, did you fail to account for all the given data in your solution method? Could you produce the formulas, or did you recall them incorrectly? Did you consistently miss the same kind of problem? Did you have difficulty on the test because you were too anxious to focus on the questions? Were you unable to finish the test because you ran out of time? Were you unable to solve problems because you didn't practice similar ones before the exam?

