

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. Another important part of preparing involves reviewing class material ...

Review

- Go over class notes & reading** Identify the major concepts and formulas from both.
- Highlight topics/problems your instructor emphasized** Note why these points are important.
- Look for fundamental problem types** Typically a course has recognizable groups/types of problems. Make sure you can tell them apart and know how to approach them.

Solve a Few

- 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?
- 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 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.
- 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).
- Create a practice test** Try cutting and pasting a test together using homework as a source for questions, as well similar problems from your textbook.

Taking the Test

Write down what you need

Before starting the test, turn it over and jot down all the formulas, relationships, definitions, etc. that you need to remember.

Review the test

Skim questions and develop a plan for your work. If any thoughts come to you immediately, write them in the margin.

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 any emergencies.

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 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.



If you still have no solution method, try these tips

If possible, write out an equation to express the relationships among some/all the givens and unknowns



Think back to similar practice problems.



Solve a simpler form of the problem or substitute simple numbers for unknowns; try to reduce the amount of abstract thinking required.



Work backwards. Ask yourself, "What do I need to get the answer?"



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 problems that will help you find a solution.

If you're running out of time and still have problems remaining, try to set the problem up in a solution plan.

This means you'll have a chance of receiving partial credit

Analyzing Returned Problem-Solving Tests

1 Read the comments and suggestions from your professor.

2 Locate the source of the test questions. Did they come from the lectures, the textbook, or homework?

3 Note any alterations. How were the problems changed from those in the notes, text, and homework?

4 Determine the source of your errors and make a plan for next time.

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? 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?