

Special techniques for math and science tests

1. Translate problems into English.

Putting problems into words aids your understanding. When you study equations and formulas, put those into words, too. The words help you see a variety of applications for each formula. For example, $c^2 = a^2 + b^2$ can be translated as “the square of the hypotenuse of a right triangle is equal to the sum of the squares of the other 2 sides.”

2. Perform opposite operations.

If the problem involves multiplication, check your work by dividing; add, then subtract; factor, multiply; square root, square; differentiate, integrate.

3. Use time drills.

Practice working problems quickly. Time yourself. Exchange problems with a friend and time each other. You can also do this in a study group.

4. Analyze before you compute.

Set up the problem before you begin to solve it. When a problem is worth a lot of points, read it twice, slowly. When you take time to analyze a problem, you may see computational shortcuts.

5. Make a picture.

Colour an elaborate picture or diagram if you are stuck. Sometimes a visual will clear the mind.

6. Estimate first.

Estimation is a good way to double-check your work. Doing this first can help you notice if your computations go awry, and then you can correct the error quickly.

7. Check your work systematically.

When you check your work, ask yourself: Did I read the problem correctly? Did I use the correct formula or equation? Is my arithmetic correct? Is my answer in the proper form?

Avoid the temptation to change an answer in the last few minutes--unless you're sure the answer is wrong. In a last-minute rush to finish, it's easier to choose the wrong answer. If you redo a solution, do not erase the original answer—just draw a line through it.

8. Review formulas.

Right before the test, review any formulas you'll need to use. Then write them on the margin of the tests or on the back of the test paper.

Source: Ellis, D. (2000). *Becoming a Master Student*. Canadian 3rd Edition. Boston: Houghton Mifflin. p. 183.