

Topic 6: How To Test Your Best

Success Story of A.K.

The following letter was written to me by a student just before her final exam in College Algebra. As she says in the letter, she had suffered from both test anxiety and math anxiety for a long time. Now suddenly it occurred to her, she was about to take her last test in her last required math course, and she was ready for it. (Note: By the way, she really was ready for it, and she did quite well on that last test! Her success in the class was never questioned!)

Dear Dr. Rapalje:

All semester I have wanted to write this success letter, but I waited because I was afraid I might not be successful in College Algebra after all. As I have been studying for the final exam that is coming up later this week, an amazing realization hit me. I know this stuff! I am going to do it! I am going to pass this class! When I started the course however, I had my reservations. I know that doing the homework and going to every class are truly the tools for success in this class, as well as a teacher who makes it not seem so intimidating.

I thought I would share with you a little about myself, so you can understand the situation that I have been in while returning to school.

Two years ago, my husband and I were divorced (he just left my 3 children and me). My children and I moved back to Orlando, where I grew up. I started working full time and in September of last year, I was involved in a very serious auto accident, a head on collision on the turnpike. My legs and arms were crushed and I was left in a wheelchair with extensive physical therapy for 8 months. Since I was in outside sales, which includes walking, I was not able to go back to my career.

So I decided to go back to school. I had 2 more classes to take to finish my Associate of Arts degree that I had started 15 years ago. The two classes were Intermediate Algebra and College Algebra. I hadn't completed those courses before because each time I attempted them, I withdrew to avoid getting an F. When I knew that I had to take these classes, I was petrified! I thought to myself, "With all the stress in my life, how can I ever accomplish these two courses?" I ended up taking Intermediate Algebra this summer with you and received a "B" and went on to take College Algebra this semester to finish my degree. I will be graduating in a couple of weeks and I wish to thank you for your patience and great teaching skills. I truly couldn't have done it with out you!!!

Sincerely,
A.K.

How Do I Overcome the Fear of Math Tests and Prepare for a Test?

As with the problem of math anxiety, a large part of test anxiety is fear of the unknown. One of the main keys to overcoming test anxiety is preparation for the test. That is, be certain that you have done enough practice on homework and that you have learned the math skills that are likely to be on the test.

Math Success Secret

If you are unprepared for the math, then you have a good reason to fear the test!

1. Identify the content to be covered on the test. If you have already done the homework, this means looking over the work you have already done, to see what types of problems you should expect on the test.
2. Does your instructor believe in giving you practice tests? If so, practice tests that were written by your instructor will probably be the best indication of what will be on his or her test. Ask your instructor for sample copies of practice tests, if they are available for you. If your instructor does not give practice tests, then there are probably chapter review exercises and practice tests in your textbook. You may want to consult additional textbooks for practice tests and review exercises. You may also want to consult with former students of the class you are taking to get old exams and notes from which to study.

If possible, get two (or more!) different practice tests. The first practice test is to familiarize yourself with the skills on the test. This means that when you find a problem that you can't do, you may need to stop and check the answers or get some help with the problem. Save the second practice test until the night before the actual test. Hopefully by this time you will be ready for the test. When you do the second practice test, pretend that you are taking a real test. This means you should try to do the entire test without interruptions, without outside help, and without checking any answers until you have finished the entire test.

Math Success Secret

Avoid Answer Dependence!

It is very important when you do the second practice test to avoid **answer dependence!** Answer dependence is the habit of checking the answer each time you do a math problem. This practice of frequently checking your answers does not prepare you for tests, since on tests you must work the entire test without any feedback as to whether the answers are correct or not. Checking answers in the homework is important, but by the day of the test, you must have confidence in yourself and be able to work the entire test before checking your answers.

Then, after you finish the practice test, grade your work to see how you did. If you need any last minute help, use one of your lifelines--phone a friend!

3. Between the first and second practice tests, plan your study time carefully. It is so important to avoid last minute cramming for the test. Identify the content to be studied in each review session. Do not try to memorize meaningless globs of information. Rather, try to focus on the major ideas and how they relate.
4. Know where your resources are located and the hours they will be available to you. This includes learning centers, tutoring, library, videos, and computer resources. Plan study sessions with friends from class.
5. Emotionally, it is very important that you maintain a positive attitude. Avoid saying negative remarks about your abilities in math. Identify the beginning signs of anxiety (like sweating, tensing of muscles, shifting around, jumping to new problems) and do something to relax. You may want to get some exercise, take a brisk walk, or go do something else for a while. Don't forget to come back!! Also, see the relaxation techniques (page 63, paragraph 5) that are recommended in "What strategies will be helpful on the day of the test and during the test?"

6. Set up a post-exam reward. The purpose of this reward is to reward your effort in preparing for the test--it has nothing to do with the exam results. As soon as the test is over, regardless of how you think you did on the test, you should enjoy your reward.
7. After you have completed other preparations and you think you are ready for the test, do the second practice test without interrupts, without any help, and without checking answers until you have finished the entire test.
8. Get plenty of rest the night before the test. Staying up all night studying for a test is definitely **not** the way to study for a test!

Strategy Summary: Before the Test

1. Identify the content area to be covered on the test. Have all the homework done before you begin to prepare for the test.
2. If possible, get two practice tests. Do your first practice test to identify the skill areas that will be on the test. Check your answers to the practice test, get help as needed as you go.
3. Between the first and second practice tests, plan your study time carefully to avoid last minute cramming for the test.
4. Have one or more study sessions with friends in which you can go over the skills that cause problems for you.
5. Keep a positive attitude. Avoid negative comments (i.e., dumb, stupid, can't do math, etc.).
6. Specifically plan a post-exam reward based upon your effort in preparing for the test. This reward has nothing to do with the results of the test.
7. The evening before the test, do the second practice test, pretending that it is the actual test--no interruptions, no answers, no outside help until you have finished the test.
8. Get plenty of rest the night before the test! Cramming for the test the night before is definitely **NOT** the best way to study for a test!

Success Story of a Student Named "H"

I am a 38-year-old college student at a community college in Florida. I have just been accepted to a college in Winter Park, Florida on a full transfer scholarship. At first glance you might suspect that my success story would relate to being accepted into this college. However, my success story is even more—it is surviving the algebra courses required to make this possible!

To appreciate my story, it is helpful to go back about 25 years to a small town in Upstate New York to a ninth grade algebra class. In this classroom was a young woman 15 years of age, who was for the most part a typical teenager. Her grades were good, she was a solid student, and she enjoyed learning. However, there was a demon at work--she was unable to “get” or comprehend what the algebra teacher was teaching the class. She asked questions, lots of them, but it just did not click for her. She barely survived the school year, but managed to finish the class with a grade of C.

Cut to the present time, when this same woman, a little older and a lot wiser, went back to school to attain her degree in Sociology. She was well on her way to her Associate’s Degree, except for her math requirements. This same *algebra-phobic* student had maintained her status on the President’s List, was motivated and self-directed. At the same time, however, she dreaded trying to fulfill the math requirement. Knowing there was no way around it, she enrolled in Intermediate Algebra. Several weeks into the course, it occurred to this student that those old fears were alive and well in her, and if she did not stare them down, they would keep her from achieving her goal. She started working with her instructor who always had time for his students, and together they worked at eradicating those fears. Now, it is fair to say that it was still a challenge for her to do the algebra, but between the user-friendly textbook and the student-friendly professor, she was able to pass not only Intermediate Algebra, but College Algebra as well.

She came to realize a couple of self-truths. Learning is an individual process, so comparisons to other students were fruitless, and finding a textbook and a professor who wanted her to succeed became the key ingredients to empowering this student to new heights of algebra understanding.

This is a success story. This is MY story. I am proud of the work I did with my instructor. The textbook also was of enormous value, and his teaching techniques greatly improved the ebb and flow of the class. No matter how you look at it, it is really this simple--the square root of this success story is a great teacher and a great textbook. I am honored to have taken two classes with this instructor. My good experiences with him will allow me to move on to the next level of my education, a more confident, accomplished, and better student.

What Strategies Will Be Helpful on the Day of the Test and During the Test?

1. On the morning of the test, get up early enough that you do not need to rush. Rushing raises the anxiety level. Be sure to eat a good breakfast with protein for long-term energy. Whenever you begin to feel anxious during the day, remind yourself, “**This is *only* a test!!**” Your life is not hanging in the balance. The worse case scenario is that you might bomb a test! Just give it your absolute, best effort!
2. When you arrive at the location of the test, do not arrive too early or too late. You should arrive early enough to get a good seat where lighting is good and there are a minimum of distractions by late arrivals, friends, etc. Try not arrive so early as to sit around worrying and listening to peers who are “anxiety generators.” If sitting and waiting in anticipation of the test makes you nervous, do something! Get a drink of water, visit the rest room, or take a short walk around the building.
3. Be prepared. Bring two or three sharp #2 pencils (not too sharp!), a black or blue pen, a watch, and perhaps even colored pencils with you to the test. Bring hard candy, and if allowed (ask your instructor) bring water, a cold drink, or cup of coffee to relieve your tension. Of course, if calculators are allowed on the test, be sure to have your calculator. Make certain that the batteries are good!
4. Clothing is important, so dress comfortably. You never know whether the room of the test will be warm or cold, so dress in layers. Bring a sweater or jacket in case the room is too cold, but wear something you can take off in case the room is too warm.

5. Use the following relaxation techniques:
 - a) Breathing exercises: breathe-in deeply, pause for a second, then breathe-out slowly. Repeat 5-10 times.
 - b) Isometric exercises: grip the chair with your hands tightly. Hold for 2 seconds, then completely relax.
 - c) Positive imagery: picture yourself on a quiet beach listening to the waves or walking in the surf.
 - d) Positive self-talk: remind yourself that you have prepared for this test, that you know the math skills that will be required on the test, that you will do your best on this test, and that you will be successful because of your efforts to learn the material.
 - e) Think about your post-test reward: picture yourself enjoying it.
 - f) Always remember: this is not life or death; it is only a test!

6. Know the ground rules for the test, the most important of which is the **time limit** of the test! Secondly, are calculators allowed on the test? Know what kind of test it will be, whether it will be problem solving, short answer, multiple choice, true/false, essay, etc. Know how the test is to be scored, whether or not there will be partial credit, whether there will be a penalty for guessing, and whether or not you are allowed to write on the test booklet. All of these factors, especially the time restriction, are important in determining how you will spend your time on the test.

7. When the test is given out, listen carefully to the instructions. Read every word of the directions. Look over the test, not to panic, but to see what to expect. (You do NOT want a surprise when you finally turn the last page!) Make a mental time schedule for the test. From the very beginning of the test, you need to know whether this is a **speed test** or a **power test**. In a power test, you will have plenty of time to work carefully. Accuracy, not speed, is important.

8. As soon as the test has begun, do a **computer dump** of (write down) all the formulas, rules, and mnemonic devices that may be pertinent to the test.
9. When you begin to take the test, be sure to do the easy problems first, in order to build your confidence. If there are difficult problems on the test, save them for last. Make sure you get all the easy problems right and most of the medium-difficulty problems before you worry about the hardest problems on the test. If you get the easy and medium problems right, you can afford to miss the hardest problems, unless your goal is to make the highest A+ in the class! Spend your time accordingly. It is *not* a good strategy to spend too much time on one or two problems. This time and energy would be better spent reworking other problems on the test in an effort to catch careless errors that you may have made.
10. If someone nearby is distracting you during the test, by tapping a pencil, popping gum, sniffing, coughing, snoring, etc., then ask the instructor for a change of seat. Remember that some people are more easily distracted than others, and if you happen to be easily distracted, then you need to move!
11. If for any reason you begin to feel anxious, then do something unusual to break the tension. A piece of candy or a mint may help. Ask the instructor a question, go to the restroom, or get a drink of water. Break the point on your pencil so you will have to sharpen it--do something! Be creative! Remember, this is only a test!
12. If answer sheets are used, be careful to put the answers in the correct place, and be sure they are copied correctly. Be certain all the questions are answered, and that for a multiple choice test all the answers are bubbled correctly. If time permits, recheck your work, especially items you feel have the greatest chance of errors.

Before you turn in the test, *always rework the first few problems* looking for careless errors. This is especially important, because you were probably nervous when you first began the test. Then, after a few minutes, you probably settled into the test and became more comfortable (and accurate!). There are students who have missed the first two or three problems on the test due to careless errors, who then go on to complete the test without additional errors.

Strategy Summary: During the Test

1. Get up early enough to avoid being rushed to get ready and get to the test.
2. Do not arrive at the test too early or too late.
3. Be prepared with two or three sharp pencils, hard candy, and a calculator.
4. Dress comfortably, being prepared in case the room is too cold or too warm.
5. Use relaxation techniques to keep yourself calm, comfortable, and thinking positively.
6. Know the ground rules of the test, especially the time restrictions.
7. Read all instructions carefully.
8. As soon as the test is handed to you, do a "computer dump" of all the relevant formulas, rules, and mnemonic devices that may be pertinent to the test.
9. Always do the easy problems first to build your confidence.
10. Avoid distractions, especially if you are easily distracted.
11. If you begin to feel anxiety building, do something to break the tension.
12. Always recheck your work before you turn in the test, especially the first few exercises.

Success Story of a Student Named "L"

I have negative memories of math throughout elementary, middle, and high school. I would normally average a "C" in my math classes. I had a lot of trouble understanding math so each time I had a math class, I would dread it. The fact that **I am hearing impaired** had a lot of impact on my not doing as well as I would have liked to. Because the teachers' backs would be towards me 90% of the time as they were writing on the

chalkboard, I would not be able to read their lips as they explained how to do the math problems. A lot of teachers were more verbal than visual when it came to teaching math. I am a visual learner, so I needed the work showed to me in order for me to have a better understanding of it.

These negative memories and experiences left me feeling frustrated and stressed out. Sometimes I would not want to do the homework because I did not understand it. I felt like I was not getting anywhere, so why should I do the homework? I could not do the homework if I did not understand it! Feelings of fear and anxiety continued as I started Beginning Algebra in my community college. I remember, as I walked into class on the first day, my heart was beating so fast because 1) I didn't like math, and 2) I had a note-taker (deaf interpreter) that I had never met and didn't even know what she looked like! Math had always been one of my worst classes.

As it turned out, I did much better in this class than I ever thought I would do. Now I have evidence of success because of this class. When I took Beginning Algebra, I loved it! I was always looking forward to going to class. Math was now my favorite subject. Where before I hated it--it was my least favorite subject--obviously that is not the case anymore. In order to succeed, I had help from my math instructor. He is the best math instructor I have ever had. I even aced the class, had the highest grade, and received a scholarship for Intermediate Algebra. It really made me feel confident about math. I believed I was capable of doing well, especially with this instructor. He was very positive, and he believed anyone could ace in math with the right teaching and effort in doing homework. I honestly never thought I would get this far, especially with my hearing impairment, but I did! My instructor and the textbooks showed how to do the problems step by step. Also, he used colored chalk to help us understand and identify where the numbers are coming from. He used visual methods as well as verbal methods when teaching.

My advice to others who have a hard time with math would be to find an instructor and math books that you can understand. And if you have a question about a math problem, ask! That is very important for math is used throughout everyday life.

What Should I Do After the Test?

1. After the test is over, do not dwell on and worry about mistakes you might have made on the test. Once the test is over, it's over. There is no longer any reason to worry about it.
2. Enjoy your predetermined post-test reward regardless of how you think you might have done on the test. It is your reward for preparing and for trying hard. You earned it, so enjoy!

3. After your post-test reward and a reasonable time of relaxation after the test, it will soon be time to get back to math. Always make it a point to be in class when the tests are given back. Do not allow fear of the test results allow you to miss the next class. This would cause you to begin the next section behind in the work. No matter how badly you *think* you did on the test, it may not be as bad as you think.

Consider the student (this was a real student!) who earned a B on a test. However, she thought she failed the test so badly that she did not have the courage to return to class until the day before the *next* test! She truly thought there was no hope for her to be successful in the class. Unfortunately, by the time she learned of the B on her last test, she had missed an entire chapter of homework, and it really *was* too late to recover on the next test. She missed a wonderful opportunity to succeed in math!

4. When you get your test back, go over your test carefully to be sure it is graded correctly. Remember teachers make mistakes too! Check the score on the test and make sure it is correct. Next, do an **error analysis** of your test to identify the types of errors you made.

Did you have **careless errors**? You will recognize these the minute you see them! If you had careless errors, perhaps you tried to rush through the test. Another source of careless errors is lack of concentration. Perhaps you were worried about something. Perhaps you were looking ahead and worrying about the next page of the test. Probably the most common type of careless error is the **sign error**. Be very careful of the signs as you work through algebra problems. To avoid careless errors, you need to focus on one problem at a time. Don't worry about the rest of the test. Slow down, focus, concentrate, and try to relax.

Did you have **concept errors**? These are problems that you missed because you did not understand important concepts. Look back at your homework to see how

you understood these concepts when you did this assignment. If you had a problem with these concepts on the test, you should go back and rework some problems like this in the homework. Because of the cumulative nature of math, this might be a prerequisite skill for something you will need later. It is important that you understand these concepts before going on to the next chapters and the next courses in math.

Next, divide the test in half. Did you have miss more questions in the first or second half of the test, or were the errors evenly distributed? If you had more errors in the first half of the test, they may have been careless errors. Perhaps you were nervous at the beginning of the test, or perhaps you tried to work too fast. (By the way, it is not unusual for students to miss make errors on the first few problems and then finish the test without additional errors.) If you made more errors at the end of the test, perhaps you spent too long on the first part of the test and ran out of time and/or energy for the last of the test. Or, perhaps you got behind in your homework, and you did not have a thorough understanding the skills near the end of the chapter. Perhaps you did not apply your time and energy evenly through the test.

5. If you find that your grade on the test does not match your effort in preparing for the test, then remember again, this was only a test! What is more important than a test score is your understanding of the math skills. Make an appointment to talk to your instructor about the test and your performance in the class. Sometimes, in spite of your best efforts, the grade just is not there. Explain what you have done so far, and show the instructor your homework as evidence of your effort. Ask for his/her recommendations as to what else you can do to improve your grade. Some instructors have a makeup policy that allows hard-working students to retake an exam. Sometimes, for students who are easily distracted, it may be helpful to take arrange to take exams in a quiet room or make-up center to instead of the classroom. If you have a problem with time on the test, your instructor may

be willing to arrange more time for you on the next tests. If you have physical or learning disabilities, then laws require instructors to give you additional time. Giving additional time and a quiet testing environment do *not* give an advantage to these students, but rather they help level the playing field for students who are otherwise at a disadvantage.

6. If you try everything you and your instructor can think of and you still are not succeeding on math tests, then perhaps you have a learning disability, many of which can be diagnosed and treated with medication and special care.

Strategy Summary: After the Test

1. Do not worry about all the mistakes you may have made on the test. If you gave it your best shot, that's good enough for now.
2. Enjoy your post-test reward regardless of the outcome of the test.
3. **Be there when the tests are returned!**
4. Do an error analysis of the test to determine what types of errors you made: careless errors (from rushing through the test or lack of concentration), concept errors (more serious errors that result from not knowing important math skills), and errors of poor time management during the test. If you made a lot of careless errors, then slow down and concentrate! If you made a lot of concept errors, then look back at your homework to see how you did on these concepts when you did the assignment. Compare your performance on the first half to the second half of the test. Make sure that you did not spend too much time on one problem. Study your errors and learn from them to improve your performance on future tests.
5. If your grade on the test is not satisfactory, then make an appointment to talk to your instructor about your test, your homework, and your performance in the course. If you are easily distracted, ask your instructor if you can take the test in a make-up center or some quiet place.
6. Remember, there may be an explanation for your difficulties. Don't ever give up!

Do You Remember?

1. What can you do to avoid test anxiety?
2. What should you do if your instructor does not have practice tests?
3. When studying for the test, is it better to study with friends or study alone?
4. What is “answer dependence”, and why is it a problem when it comes to taking tests?
5. Multiple Choice: When you take a test, which problems should you do first? A) Do them in the order of the test; B) Do the hardest ones first to get them out of the way; C) Do the easiest ones first; D) The order in which you do the problems does not matter.
6. Multiple Choice: Why is it a good idea to answer the easiest problems first. A) To build your confidence; B) To make sure that, if you run out of time, you didn't neglect any easy problems; C) Because sometimes the answer to one question may be answered in another question; D) All of the above.
7. Multiple Choice: What should you do if you finish the test early? A) Turn your test in so everyone will be impressed with how fast you finished the test; B) Recheck your work, especially the first few problems, for careless errors; C) Close your eyes and take a nap--after all you were probably up all night studying; D) Mention to the instructor on the way out that you thought the test was too short.
8. Multiple Choice: What should you do if, in spite of all your homework and preparation, you fail a test? A) Give up, and never go back to class; B) Go back to class, and pretend nothing happened C) Blame it on the instructor, and sign up for someone else's class; D) Make an appointment to see your instructor.