How to Earn an A in Math

Practice does not make perfect. Only perfect practice makes perfect. –Vince Lombardi

Practice is the ONLY way to do well in math. LOTS of practice. Enough to get sick of it. Until you've memorized everything. Yes, it's true that you need to understand the concepts. However, that's only half of math. You must also practice a concept so much that you get it right—every time. Understanding the concept doesn't mean anything if you don't get the right answer. You won't get the right answer if you don't understand the concept, but understanding the concept does not guarantee that you'll get the right answer. You'll forget the little details of the steps to get to the right answer.

There's more than "just practice." **You have to learn to practice in the right way**. You may have heard the saying, "practice makes perfect." No, it doesn't. **Perfect** practice makes perfect. So, learn to do perfect practice. In my math classes, this is what perfect practice looks like:

1. Daily review. *(PLAN TEN TO TWENTY MINUTES AT THE BEGINNING OF EVERY SCHOOL DAY IN THE MONTH)*

- **a.** Every day, start math time with review. By review, I mean go back to problems from previously completed sections. Choose one problem from the day before, one problem from the day before that, and one problem from the week before. If it's late in the month, make sure you include problems from the early sections of the month.
- **b.** Pay attention to where you choose the review problems from. Make sure that over the course of every few days, each type of problem, starting from the beginning of the month, is reviewed.
- **c.** The review problems can be the same problems that you already completed in the days or weeks before. The purpose of this review is primarily so you do not forget the things from the days before while learning new information.

2. Understand the concept (you can't practice if you don't know what to do).

(PLAN TO USE ONE DAY [1 TO 2 HOURS] FOR EACH SECTION)

- **a.** Study the explanation in the textbook.
  - **i.** Read it carefully, follow the logic in the sentences and paragraphs, and make sense of what the author is trying to tell you.
  - **ii.** Write in your own words what the concept is. This makes part of the required notes.
- **b.** Study the examples.
  - **i.** Pay close attention to each and every step that is shown in solving the examples.
  - **ii.** Write for yourself and in your own words EXACTLY how to do the problem (part of notes).

3. Practice, Part 1: Do the problems assigned. *(PLAN ONE DAY FOR EACH SECTION)*

- **a.** Do only 2 to 5 problems at a time.
- **b.** After each small set of problems, check to see if correct. First check only the answer, not the steps. You'll check the steps if you can't figure out the mistake yourself, first.
  - **i.** Any incorrect problems: you must redo them, using examples/notes to verify doing the correct method.
  - **ii.** Check again to see if correct. This time, if any are still incorrect, match the answer key steps with your steps, to find the discrepancy.
  - **iii.** Write the specific steps you had problems with. Those steps are the things to spend extra time memorizing and looking for, since you now know they can be difficult part for you.
- **c.** Do this all the way through. If you want to stop and check after every problem, that's fine. After a few problems, you may feel more confident to do more than one at a time.
- **d.** NEVER do a full page of problems before checking. If you're wrong on most of the problems, then you just wasted your time.
- **e.** Complete all the required monthly work ONE WEEK before you plan to take the monthly math test.

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4. Study Guide. *(PLAN ONE TO THREE DAYS)*

- **a.** Get the study guide on time, a week before math testing starts. Identify what types of problems are going to be on the test…notice some sections have more, or less, and some look the same—which means there will be little variations.
- **b.** Those problems are now your guidelines for further learning, in part 5.

5. Practice, Part 2: Practice, practice, practice. *(FOR ONE WEEK OR MORE, BEFORE THE TEST)*

- **a.** For each line on the study guide, do as many problems as you can.
  - **i.** Use the answers to **MEMORIZE** exactly how to do those types of problems.
  - **ii.** Do five of those problems again—**with no notes, no textbook, nothing but your own memory**. Any of the five incorrect? Figure out exactly where you went wrong.
  - **iii.** Do five more of those problems, again **with no notes, no textbook, nothing but your own memory**. Any of the five incorrect? Figure out exactly where you went wrong.
  - **iv.** Keep doing five problems at a time until you get all five exactly correct. Then you can move to the next practice test problem that you did incorrectly. (If there are not enough problems to do so much practice, do as much as is available…even if you repeat some. You can also make up some problems for yourself.)
- b. Repeat this "five problems at a time" practice until you have mastered each type of problem.

6. Your Own Practice Test. *(PLAN ONE OR TWO DAYS, maybe more if you make more practice tests for yourself)*

- **a.** When done with as much of the study guide as you have time for, make up your own practice test by finding in the textbook a similar problem for every single study guide line—even the ones you did correctly the first time.
- **b.** Now try to do this new practice test on your own—**no notes, no textbook, nothing but your own memory**.
- **c.** Check your answers with hotmath.com or the solutions manual. You should have many more correct than the first time you worked on the study guide.

Note the times where you should not use notes, textbook, or any other help—only your own memory. That is the only way to be sure that you really know something. If you have to use something to help you when practicing, then when you go to take the real test, you're not going to be able to do the questions correctly, because you're not allowed to use any of those things to help you.

This type of preparation is called "**OVER-STUDY**," and it's what "A" students do. Most students who have been earning D's or F's would be "A" students if they would do these things—commit themselves to **hard work** and lots of practice—**practice until mastery**.

Students often say they want to earn an A, or at least a better grade**. This is the way to do it.** If you can earn an A without doing these things, go right ahead. But if you're not earning an A and you want one, do these things. Do them seriously, and completely.

The issue of TIME: Doing this type of practice does indeed take time. As students get more used to a system like this, it will take them less time. Especially important is that students in independent studies need to plan their schedules so they can complete their work, prepare well for every subject's tests, and allow for the various activities they do outside of school—sports, acting, music, and so on. Parents need to do this scheduling for middle school students, and parents of high school students need to monitor the students' schedules.

Summary: Practice, practice—**but do it right, and do it well.**