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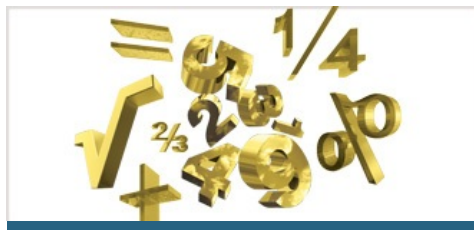
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## Secrets of Mental Math

Taught By [Professor Arthur T. Benjamin](#), Ph.D., Johns Hopkins University, Harvey Mudd College

Course No. 1406



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Quick: What's  $25 \times 45$ ?

How about  $742 \times 300$ ?

Or  $4821 \div 9$ ? Most of us, when faced with math problems like these, immediately reach for a calculator or a pen.

But imagine if you could perform these and other seemingly difficult—but surprisingly easy—calculations right in your head.

Seems like an impossible feat? It's not.

One key to improving and expanding your math potential—whether you're a corporate executive or a high-school student—lies in the powerful ability to perform mental math calculations. Solving basic math problems in your head is a gateway to success in understanding and mastering higher mathematical fields such as algebra, statistics, and calculus. It's a skill that offers other lifelong benefits, including

- giving you a competitive edge in school or at work;
- keeping your mind active and sharp at any age;
- improving your performance on standardized tests; and
- learning to solve problems by using a variety of methods.

Mental mathematics also is valuable when you're shopping for groceries or figuring out how much to tip at a restaurant. And perhaps the best part? Learning how to do mental math can be fun—especially when you're learning in the company of Professor Arthur T. Benjamin of Harvey Mudd College, one of the most engaging and entertaining members of The Great Courses faculty. **The Secrets of Mental Math**, his exciting new 12-lecture course, guides you through all the essential skills, tips, and tricks for improving and enhancing your ability to solve a range of mathematical problems right in your head.

### Mental Math—Made Simple

Mental math, as Professor Benjamin demonstrates, is not as daunting as it may seem. In fact, it's an ability you already have—you just may not know it. Performing calculations in your head is all just a process of breaking down a large problem into simpler and simpler problems until it's finally reduced to a single answer.

Assuming no detailed knowledge of mathematics other than what you learned in elementary school, Professor Benjamin has designed **The Secrets of Mental Math** to be accessible to anyone looking to tap into or strengthen his or her mental calculating skills.

In the first part of the course, you focus on specific strategies for performing the basic nuts-and-bolts operations of mental mathematics.

- Adding any two numbers up to three digits
- Subtracting any two numbers up to three digits
- Multiplying any two numbers up to two digits
- Dividing any number by a number up to two digits

Dr. Benjamin fills each lecture with a wealth of practice problems to follow along with and get you engaged in the joys of mentally solving math problems.

Once you've gotten these four fundamental operations down, you then branch out into some interesting directions that continue to hone your mental math skills. Among the exciting skills you'll develop are

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8. The Speed of Vedic Division ([info](#))
9. Memorizing Numbers ([info](#))
10. Calendar Calculating ([info](#))
11. Advanced Multiplication ([info](#))
12. Masters of Mental Math ([info](#))

- how to find approximate answers using the art of "guesstimation";
- how to quickly find squares and square roots;
- how to improve your memory for numbers (including phone and credit card numbers) by using a simple phonetic code;
- how to approach enormous calculations with increased confidence and accuracy;
- how to mentally determine the day of the week of any date in history; and
- how to do rapid pencil-and-paper mathematics in ways seldom taught in school.

And his accompanying course guidebook is filled with additional problems you can use to practice your newfound skills.

#### Discover Valuable Mathematical Tips and Techniques

Throughout **The Secrets of Mental Math**, Professor Benjamin leads you through some fun—and memorable—techniques for tackling specific mathematical calculations. Here's an example of one strategy he calls "Create a Zero, Kill the Zero," helpful for determining the divisibility of any odd number that doesn't end in 5.

Is 1232 a multiple of 7?

- Start by adding or subtracting a multiple of 7 to create a 0 at the end ( $1232 + 28 = 1260$ ).
- Kill the 0 from the new number (1260 becomes 126).
- Add or subtract a multiple of 7 to create another zero at the end ( $126 + 14 = 140$ ), then kill the 0 at the end.
- Determine whether the new number is a multiple of the original divisor (yes, it's 14).
- Thus, 1232 is a multiple of 7.

#### An Encouraging, Rewarding Look at Numbers

But you'll get more than just fun strategies to help make mental math easier. Learning with Professor Benjamin is like having a supportive coach right by your side—someone to encourage you, challenge you, and instill mathematical confidence in you. It's this same teaching method that has won him a host of prestigious awards from the Mathematical Association of America, including the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics.

So prepare yourself for an unforgettable adventure in mental mathematics. Enjoyable, eye-opening, and immensely rewarding, **The Secrets of Mental Math** makes basic math quicker and easier than ever before. And it's a powerful way to take your first, more confident steps into the intriguing—and undeniably fun—world of numbers.

#### About Your Professor

Dr. Arthur T. Benjamin is Professor of Mathematics at Harvey Mudd College. He earned a B.S. from Carnegie Mellon University and a Ph.D. in Mathematical Sciences from Johns Hopkins University.

Professor Benjamin's teaching has been honored repeatedly by the Mathematical Association of America (MAA). In 2000, he received the MAA Deborah and Franklin Tepper Haimo National Award for Distinguished College or University Teaching of Mathematics. In addition, the MAA named Professor Benjamin the 2006–2008 George Pólya Lecturer.

#### Available Exclusively on DVD

Because of the highly visual nature of the subject matter, this course is available exclusively on DVD. It features hundreds of visual elements, including step-by-step walkthroughs of mental math problems, as well as graphics and illustrations.

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