

Hey, Who Said You Couldn't Do Math? - It's All in Your Head

By Joe Pagano So you think you can't do math, huh? Well, what if I told you that without even an algebra background I could teach you some calculus right here and now? You don't believe me. I thought so. This unbelief proves how programmed you've been from early on to reject mathematical teachings. Whoever laid this negativity on you really did a number on you. Well, let's get rid of that negative programming and feed you some really positive stuff. In this short article, I am going to prove to you that you can do calculus. In fact, by the end of your reading this, you will know how to perform a fundamental operation which forms one of the key branches of this most important mathematical discipline. This fundamental operation is known as differentiation and as such forms the branch known as differential calculus. When we perform differentiation, we are finding derivatives, and this is the process we will learn more about in this article. Differentiation is a procedure which allows us to do things like find the highest point of travel by a projectile, or to figure the maximum profit given a specific rule for the revenue of a particular business or enterprise. Differentiation also allows us to approximate, without a calculator, the square, cube, or even fourth roots of numbers (see my Why Study Calculus series of articles). How's that for an important procedure! And to think I'm going to show you how to do some of this right here, right now, regardless of your previous training or education. It just doesn't get better than this.

In calculus we work with things called functions, which are nothing more than rules which relate different letters. The letters are known as variables and the most common letters used are X and Y. For example, the rule which says that Y is always equal to three times whatever X is, is expressed as $Y = 3 * X$, where the asterisk symbol "*" represents the operation of multiplication. We can also write this as $Y = 3X$, in which no space between the number 3 and the X means that we multiply these two together. The rule which says that Y is equal to X times itself is expressed as $Y = X * X$. We also write this same function as $Y = X^2$, where the "^" symbol followed by the 2 means we multiply X by itself, also known as "X-squared." The function that says that Y is equal to four times X-squared is written as $Y = 4 * X^2$, or $4X^2$. Now bringing a little calculus into play, I will show you how to perform the operation of differentiation on each of the above functions, or rules. Remember. This procedure will allow us to determine more specific information about each of these functions and thus allow us to calculate certain important values. First take $Y = 3X$. Anytime we have a number times X, we can find the derivative by taking the number in front of X. Thus the derivative of $3X$ is—you got it—3. For $4X$, the derivative is 4, and for $100X$, the derivative is 100. What is the derivative of $18X$? Whenever we have a function like X^2 , we find the derivative by taking the 2 and multiplying by the number in front of X and then X. In the function X^2 , the number in front of X is a 1 understood. So the derivative of X^2 is $2 * 1 * X$ or just $2X$. In the function $4X^2$, the derivative is $2 * 4 * X$ or $8X$. In the function $16X^2$, the derivative is $2 * 16 * X$ or $32X$. What is the derivative of $9X^2$? Yes, folks. I've just taught you some calculus in less than a seven-hundred-word article. And you thought you couldn't do math. Remember that the next time the naysayers start flocking around you. Oh, and by the way. If you answered 18 to the first question above, and $18X$ to the second, then I've proved my point. See more interesting math articles at my website. See [Cool Math Ebooks](#) for some really interesting ebooks and shortcuts on math.

About the Author

Joe is a prolific writer of self-help and educational material and an award-winning former teacher of both college and high school mathematics. Under the penname, JC Page, Joe authored Arithmetic Magic, the little classic on the ABC's of arithmetic. Joe is also author of the charming self-help ebook, Making a Good Impression Every Time: The Secret to Instant Popularity; the original collection of poetry, Poems for the Mathematically Insecure, and the short but highly effective fraction troubleshooter Fractions for the Faint of Heart. The diverse genre of his writings (novel, short story, essay, script, and poetry)—particularly in regard to its educational flavor— continues to captivate readers and to earn him recognition. Joe propagates his teaching philosophy through his articles and books and is dedicated to helping educate children living in impoverished countries. Toward this end, he donates a portion of the proceeds from the sale of every ebook. For more information go to <http://www.mathbyjoe.com>.

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