

I WISH MY FRESHMAN STUDENTS Knew...

I've yet to meet a college student who is incapable of successfully completing college-level math. Yet, the complaint I hear whenever a student is frustrated with a grade or a concept is "I just can't do math." This can truly be a self-fulfilling prophecy, but when students push past their own self-imposed limitations on learning, they often find themselves quite successful.

... that they really do need math.

Very few of us, even math teachers, use the quadratic formula on a daily basis. But the "mental muscles" developed in math class are used throughout problem-solving situations, not just the ones with numbers.

... that memorization isn't enough.

A student will be able to accomplish a lot more math in less time if he or she has memorized certain mathematical facts, such as the multiplication tables. But memorization should never replace a real understanding of the concept. What would a student do if he or she somehow forgot the product of three and eight? Would he reach for a calculator? Or would she remember that "three times eight" means having three eights, reducing the problem to simple addition?

... that basic math skills are vital to success in college math.

In a perfect world, students would wring every cent out of

**that they
really can
learn math.**

their high school education (and render my job obsolete) by taking every possible math course offered, entering college with Advanced Placement credit. Short of this ideal, every student should leave high school with, at minimum, a strong foundation of arithmetic, Algebra I, and basic geometry, including:

An excellent working knowledge of the basic mathematical operations, including exponents and roots, as they apply to rational and irrational numbers. Most of these can, and should, be done without the aid of calculators.

An understanding of how variables work, and the ability to solve linear, polynomial, and rational equations.

Familiarity with graphs of one and two variables.

Mastery of the basic vocabulary of geometry and related formulas for angles, length, perimeter, and area.

Some exposure to systems of equations and methods for solving them. ✍



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