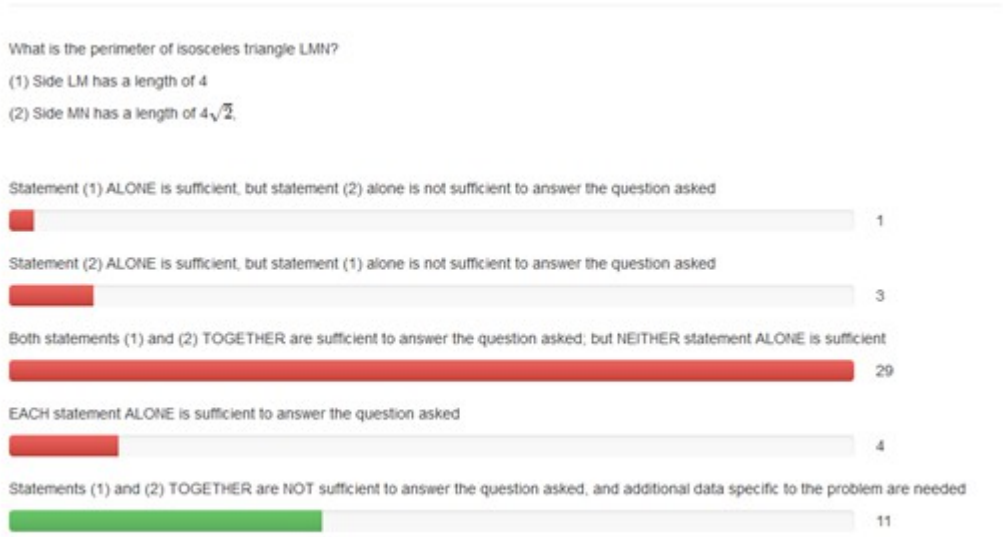
While we discuss GMAT question difficulty, let's start by mentioning this: it's often quite difficult to convince GMAT students of what on the GMAT is truly difficult. Students overestimate the difficulty of the "math" on the GMAT quant section, studying and discussing in forums the various rules, shortcuts, and properties that they can cram from flashcards or highlight in notebooks. In doing so, they underestimate the capacity of their competitors to do the same – remember, every single competitor of yours on the GMAT has been to college. Every single competitor "knows how to study," and theoretically every single competitor of yours has passed year-long classes on the content of the GMAT (largely algebra, geometry, and arithmetic). Mastering high school math skills is necessary for success on the GMAT, or at least a very good idea, but when you're competing with a pool of test-takers who have all demonstrated the ability to do the same, it's not sufficient for you to separate yourself!

Take this question, for example, which baits test-takers by satisfying their pride in study habits:
What is the perimeter of isosceles triangle LMN?

(1) Side LM has a length of 4
(2) Side MN has a length of $4\sqrt{2}$

Before we get to the statistics on this one, think about what this question is testing. Yes, it's a geometry question and, yes, it's a triangle question. In fact, it's an isosceles triangle question. So it's only natural that your interest should be piqued by the sides of 4 and $4\sqrt{2}$. You studied that isosceles right triangle, 45-45-90 side ratio. But so have most 14-year olds in this country…so why is this question in a blog post that highlights some of the hardest questions in the Veritas Prep Question Bank?

The stats will tell you the story:



Nearly everyone goes for C on this question, and confidently so. They see the sides of 4 and $4\sqrt{2}$ and assume that this isosceles triangle fits one of the handful of side ratios they've memorized for special triangles: $x : x : x\sqrt{2}$. But the question didn't say that this is a right triangle – why couldn't the sides be 4, $4\sqrt{2}$, and $4\sqrt{2}$? That's still an isosceles triangle, and it has a different perimeter. The correct answer is E.

More importantly, this question bears out a major element in GMAT question difficulty. Difficult questions bait you by providing a trap answer that you expect to see. In previous posts we've talked about the dangers of assuming things about variables (that they're positive; that they're integers) and we've talked about the classic "Shrumbuster" setup, in which:

1) The question satisfies your intellect by letting you get that "a-ha!" feeling ("of course – a 45-45-90 triangle!")
2) Having done that, the question catches you in an assumption

What makes this question so difficult — what makes a fairly standard geometry setup one in which less than 23% of users answer correctly — is that it satisfies that part of your mind that expects to be rewarded for studying. When you see the payoff for having studied triangle ratios, you pat yourself on the back and let down your guard. But those who are rewarded on this question are those who know that difficult GMAT questions are typically difficult because of the reasoning involved, not just because of the content knowledge.

Those who answer correctly are those who see this not as a “triangle question” but as a “data sufficiency question” — they recognize that data sufficiency questions are notorious for polluting your mind with an assumption and then using that to exploit you for not considering all options. So learn from your competitors – don’t be so impressed by what you know; instead, use it as a basis for thinking critically.