# The GMAT Unlocked 

I. Inside GMAT Scoring<br>II. The Anatomy of a GMAT Question III. Practice and Performance



TEST PREP
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## About this Document

At Kaplan GMAT, our mission is to prepare you for the test as efficiently and effectively as our 70+ years of experience in test preparation make humanly possible. Our faculty members are fond of saying, "We won't spend a minute during our time together on anything that won't raise your score." In line with this approach, our GMAT course covers how the test works, how it's scored, and similar questions, but with a relentless focus on the takeaways for optimal performance. We cover, for example, how question difficulty changes over the course of a section of a CAT and the implications for your time management and guessing strategies.

Something else happens in the classroom: you ask questions. After you practice a GMAT problem - maybe one that got the best of you the first time around - you wonder whether that item was fair. You wonder whether you'll see a similar question on Test Day. You have questions also when you take a practice test, such one of the 2 free CATs published by GMAC or one of the 9 CATs included in the Kaplan course. After a practice test, you ask how accurate that score is and how accurate a predictor it is of your performance on Test Day. These questions may take you outside the scope of what you strictly need to practice to improve your GMAT score, but answering them helps you understand where you are in your practice, helps you feel at home with the test, and satisfies the appetite for data and the spirit of practical inquiry that MBA students are known for.

In this white paper, we'll cover both types of questions - the key takeaways, and the subtler questions that our students ask. If you're like $99 \%$ of b-school applicants, you are eager to reach a point at which you can declare your relationship with the GMAT to be done forever. Until then, here's everything you need to know about the machinery of the test-and maybe a bit more.

Good luck in your preparation.

- The Kaplan GMAT team
P.S. We'd like to acknowledge the test makers. The knowledge in this document is based primarily on studies and information published by the Graduate Management Admissions Council (GMAC), the test makers and the organization behind mba.com, the site where you can register for the GMAT. Nevertheless, since the GMAC is not in the business of publishing exactly how the test works-and neither is Kaplan - please consider the more technical details of the white paper to be illustrative in nature.


## I. Inside GMAT Scoring

## The Scoring Scale

The most important score on the GMAT is the total score, which ranges from 200 to 800 . This score is the GMAT result that schools look at primarily. The population of these scores follows a standard distribution: most students score near the mean score, and more than half of all GMAT test takers score within 100 points of 550, the median score. Pulling yourself out of that cluster is an important part of distinguishing your application: the top ten schools accept students with an average GMAT score of 718, almost 94th percentile.

| \% Ranking | Score |
| :---: | :---: |
| $99 \%$ | $760-800$ |
| $98 \%$ | 750 |
| $97 \%$ | 740 |
| $96 \%$ | 730 |
| $94 \%$ | 720 |
| $92 \%$ | 710 |
| $90 \%$ | 700 |
| $88 \%$ | 690 |
| $85 \%$ | 680 |
| $84 \%$ | 670 |
| $82 \%$ | 660 |
| $79 \%$ | 650 |
| $75 \%$ | 640 |
| $73 \%$ | 630 |
| $70 \%$ | 620 |

## Some GMAT Percentiles vs. Total Scores ${ }^{1}$

The total score is calculated from "scale scores" from the Quantitative section ( 75 minutes, 37 questions) and Verbal section ( 75 minutes, 41 questions). Hypothetically, these scores range from 1 to 60 , but the extreme scores exist only to allow room for future expansion. Currently, possible scores range from 11 to 51 . These scores are meant to provide a timeless, absolute measure of skill. For example, "a Quant score of 43 in 2002 represents the exact same level of ability as a Quant score of 43 does in 2011." ${ }^{2}$

The scale might seem arbitrary to you. You may be wondering, "Why 11 to 51, of all possible scales?" One reason to have a scale such as this one is to avoid confusion with

[^0]percentiles or percentages. If scaled scores ranged from 0 to 100 , for example, there would be tremendous confusion between those scores and percentiles and percentage of questions answered correctly.

While the scale scores haven't changed over time, the population of test takers has. Quant performance has gone up over time and Verbal performance has gone down. While the Verbal section score still follows a fairly typical distribution, the Quantitative scale score is skewed high. In recent years, between 5 and 7 percent of test takers got a 50 or 51 on the Quant section. Because of the shift over time, and the nature of the population, percentiles don't match exactly to scaled scores. As that fact indicates, there is a third way of slicing and dicing GMAT performance: percentiles.

Schools view your percentile performance (which is the same thing as a "percent ranking") overall and on each section of the GMAT. The relationship between the section percentiles and the overall percentile is not simple. We're frequently asked, "One of my scale scores is 83 rd percentile and the other is 84 th percentile. How can my overall percentile be 87th percentile?" The answer is that this type of outcome is unproblematic. You can see how in a simplistic example. Imagine that of one hundred students taking the test, fifty people got a 51 Quant and 10 Verbal, while the other fifty people got a 10 Quant and 51 Verbal. You take the same test and get 40 Quant and 40 Verbal. You'd be $50^{\text {th }}$ percentile on each section, because $50 \%$ of test takers scored worse than you. However, your total score would put you higher than anyone else on the test $-99^{\text {th }}$ percentile.

| Quantitative |  |
| :---: | :---: |
| \% Ranking | Score |
| $98 \%$ | 51 |
| $93 \%$ | 50 |
| $86 \%$ | 49 |
| $82 \%$ | 48 |
| $77 \%$ | 47 |
| $75 \%$ | 46 |
| $72 \%$ | 45 |
| $68 \%$ | 44 |
| $65 \%$ | 43 |


| Verbal |  |
| :---: | :---: |
| $\%$ Ranking | Score |
| $99 \%$ | $46-51$ |
| $98 \%$ | 45 |
| $97 \%$ | 44 |
| $95 \%$ | 42 |
| $92 \%$ | 41 |
| $89 \%$ | 40 |
| $87 \%$ | 39 |
| $83 \%$ | 38 |
| $80 \%$ | 37 |

Some Percentiles vs. Scale Scores for the Quantitative and Verbal Sections ${ }^{3}$
Now that we've cleared up that point of confusion, let's note two key takeaways about percentiles. The first is that the overall score is about your balanced performance on the two sections. Generally, you will not win on the GMAT by nailing one section and hoping your performance will overcome a deficit on the other. The second key point is that, since Quant and Verbal percentiles aren't obvious from the overall score, admission officers often look at them

[^1]specifically. Some admissions officers at top schools have remarked on panels, "We will look specifically at the Quantitative percentile on the GMAT. You should have at least an 80th percentile on that section as well as a strong overall score." Moreover, at specialized MBA and management programs, a Quantitative percentile of 90th or more may be more of the norm.

So which of these measures is most important? The primary score of 200 to 800 is the most important score, since it's a balanced measure of absolute and relative performance. Next come percentiles, which admission officers often look at. In our experience, b-school admissions officers rarely mention paying attention to scale scores.

The Analytical Writing Assessment (AWA) is scored separately from the rest of the GMAT. Unlike the total and scale scores, AWA scores aren't available on Test Day. When you do get your score, it will take the form of a number from 1 to 6 in increments of 0.5 (you get a zero if you write off-topic or in a foreign language). The magic number here is 4 . Although students should strive for the best score possible, an essay graded 4 is "satisfactory," and an essay graded 3 is not.

| AWA |  |
| :---: | :---: |
| \% Ranking | Score |
| $91 \%$ | 6 |
| $77 \%$ | 5.5 |
| $56 \%$ | 5 |
| $37 \%$ | 4.5 |
| $21 \%$ | 4 |
| $10 \%$ | 3.5 |
| $5 \%$ | 3 |
| $4 \%$ | 2.5 |
| $3 \%$ | $0.5-2$ |
| $0 \%$ | 0 |

Percentiles vs. Scale Scores for the AWA ${ }^{4}$
Percentiles give a slightly different perspective on the AWA. An AWA score of 4.5 ranks at a shockingly low 37th percentile. To break the median, you have to score a 5 or higher. ${ }^{5}$ The good news is that no program, in our experience, uses the AWA score to differentiate candidate competitiveness. It's more of a reality check against the writing skills that you demonstrate in your application essays. And in this vein, a little-noticed fact: business schools receive the actual text of your AWA essays in the official score report. They're not going to spend too long examining your 30 -minute treatise on whether additional taxation is in the greater interest of the citizens of Mauritania, but they have the option.

[^2]A new section, Integrated Reasoning (IR), is coming in 2012. It will have its own scoring scale, independent from the 200 to 800 scale. We'll have a lot to say about IR as the change approaches; stay tuned to our blog, http://blog.kaplanGMAT.com. Check out the official GMAT website for more on that topic and for more general information on scores. ${ }^{6}$

## The Computer Adaptive Format

The computer adaptive test, or CAT, is a fairly new testing format. The test is called "adaptive" because, in the course of a section, the test notices whether you answered the previous question correctly or incorrectly and "adapts" in its selection of the next question.

A few basic rules make the adaptive format possible.

- You're presented with one question at a time, and you must answer it to move on to the next question.
- You can't return to previously answered questions within a section.
- You can't skip questions - or rather, the only questions that can be skipped or omitted are any questions at the end of a section that you leave unanswered.
- Within a section (Quantitative or Verbal), the questions are not grouped by topic or type. You don't, for example, finish Reading Comprehension and then move on to Sentence Correction and then to Critical Reasoning; those three question types are interspersed with each other throughout the section.

Here's how the adapting works. You start the section (Quantitative or Verbal) with a median-difficulty question; about half of test takers get it right, and half get it wrong. Those who answer correctly get a harder question for the second item, and those who answer incorrectly get an easier item. This pattern repeats: throughout the section, if you got the previous question right, generally you'll get a harder question next. Conversely, if you got the previous question wrong, generally you'll get an easier one next. This pattern reiterates so that you follow a generally upward, downward or flat trajectory through the questions. The test homes in on the difficulty level that is best matched to your performance; at that difficulty level, generally, you'll get about half the questions correct and half incorrect. How high on the difficulty scale you end up is one of the criteria that determine your score, along with how many questions you answer and other factors.

[^3]

## Question Number

A rough schematic of how adaptive scoring works on a $\mathrm{CAT}^{7}$
The adaptive design of the test has two purposes:

1. Accuracy: A CAT is allegedly more accurate than a "linear" (i.e., non-adaptive) test because it zeroes in on a test takers ability level. Lucky guesses cause the GMAT to give lucky testers harder questions than they can answer, thus eliminating any gains resulting from chance. Conversely, unlucky arithmetic errors on tough problems give unlucky testers easier problems, and these unlucky testers should be able to get the easier questions right, thus correcting the non-representative drop in score.
2. Time: CATs can be designed as shorter than comparable linear tests, and the shorter duration is a benefit both to you and the test maker. The reason for this efficiency is that a CAT does not waste questions. If you get most of the questions right, you pretty much never see an easy one, and if you get most of the questions wrong, you pretty much never see a hard one. On a linear test such as the SAT, on the other hand, everyone gets the same mix of easy and hard questions. On such a test, students struggling on the easy questions will do little better than chance on the challenging problems, while high-scoring students will get close to $100 \%$ of the easy questions. Thus, giving low-scoring questions to high-scoring students (and vice versa) doesn't actually provide much useful statistical data. In this respect, many questions are "wasted," and the CAT can afford to be a much shorter test at equal accuracy.
[^4]Those points define the basic pattern of the CAT, but there are additional bells and whistles in the algorithm. One of the most important details to be aware of is that the test does not always adjust difficulty level question by question. ${ }^{8}$ Therefore, avoid the temptation of assessing the difficulty level of a question you're on and attempting to infer whether you got the previous question correct. Even if you could assess a question's difficulty level (and you can't, in practice, for reasons we discuss partly below), you wouldn't be able to draw any conclusions, since the test doesn't always adapt question so immediately.

The trial or "experimental" questions are another refinement to the CAT formula. Some of the questions in each section do not count toward your score. The test maker must try future questions out on people who do not know that they are experimental in order to determine the validity and difficulty of the questions. We'll talk more about this topic below, but we'll give away one punchline early: do not try to guess which questions are experimental.

## Are the first questions more important?

Now let's go straight to Frequently Asked Question \#1 about GMAT scoring, which is, "Are the first ten or so questions more important?"

As we've discussed, the GMAT adaptive algorithm starts with a medium-difficulty question. If you get it right, your next question is harder, and if you get it wrong, your next question is easier. The swings are wild at the beginning, narrowing in on an estimate of performance. For that reason, you may find it tempting to spend lots of extra time at the beginning of the test.

The short word on that idea: don't.
The test makers address this question head-on with the following explanation:
It is true that the computer-adaptive testing algorithm uses the first 10 questions to obtain an initial estimate of your ability; however, that is only an initial estimate. As you continue to answer questions, the algorithm self-corrects by computing an updated estimate on the basis of all the questions you have answered, and then administers items that are closely matched to this new estimate of your ability. Your final score is based on all your responses and considers the difficulty of all the questions you answered. Taking additional time on the first 10 questions will not game the system and can hurt your ability to finish the test. ${ }^{9}$

The test makers insist that that, despite persistent rumors to the contrary, you can't outsmart the GMAT by spending extra time at the beginning. The reason for this is timing; if you're correctly answering more questions than you should in more time than you should, then the remaining three quarters of the section will be much harder and under more time pressure - your short-term gains will be erased.

[^5]However, you still want to adjust your test-prep strategy to account for those early swings. Specifically, remember that even when you have reached the high-scoring point that most of your test is made up of challenging, high-reward problems, you still have to go through the simpler problems to get there-don't rush or become overconfident just because those first few questions are easier.

One of our GMAT faculty members likes to make comparison to a sporting event. Are the first innings or the first quarter of a game more important than the following ones? Maybe, since they set the whole tone of a game and give the leading team options. But to win, you need to start strong and finish strong.

The cost of not finishing strong on the GMAT is substantial. If you don't answer all the questions, there is a penalty assessed which will precipitously lower your score. According to GMAC, this effect is more exaggerated in the case of high scorers. "Failing to answer five questions...could reduce your score from the 91st percentile to the 77th percentile." ${ }^{10}$ And as we will see now, a score difference of that magnitude is substantial.

## How much can a GMAT score change?

There are two pieces to the question of how much a person's GMAT score can change within a given period of time:

1. How much scores vary;
2. How much scores can be improved.

These are important practical questions. If you have a baseline score that's far from your target, you need to know whether you can reach your target and how much work it will take. Or, you may have received a low score on the GMAT, and you're wondering how much it might go up if you retook the test in a month with your act slightly more together.

How much scores vary. Scores can vary widely, but tend not to. The test makers present two statistics on the subject that tell slightly different stories.

First is the "reliability" of the test. The GMAC answers our question directly by saying that you are $92 \%$ likely to get the same score on the GMAT if you take the test and then retake it (without any study in between). ${ }^{11}$ That's probably a lot more reliable than you expected. The test makers do go on to make the following statement:

The current standard error of measurement for the GMAT Total score is 29 , which means the reported GMAT Total score is within 29 points above or below a score reflecting true performance - a repeat test taker with Total scores within 29 points of each other knows he or she has performed consistently. ${ }^{12}$

[^6]So, there is little reason to retake the GMAT in the hope of improving your score without substantial preparation. The standard error of measurement also gives us some guidance on score improvement. Anything over 30 points constitutes a major score improvement. In other words, thirty points may or may not sound like a lot on the GMAT scoring scale to you - but it is a lot.


30 is the magic number when evaluating scores against true performance
Having a "bad day." As GMAT teachers, we see applicants have a "bad day," recognize it as such, and walk away with unrealistically high hopes about how much their score will go up after a simple retake on a "good day." The figures above - the $92 \%$ reliability and the 29 -point standard error - indicate that your score on a good day is likely to be the same as your score on a bad day. Furthermore, if your score on a good day is any higher, it's very, very unlikely to be more than 30 points higher unless you have raised your skill level through preparation. There is a hope for score improvement, but it lies along a path paved with practice.

One exception to this rule is the off day caused by sickness or a major disruption, such as a fire alarm, or a test taker in the carrel next to you reading every question aloud. If you are severely hindered from completing your test, you should probably cancel your score on Test Day. Even if you don't cancel, you should reschedule for another date in the near future to have a good shot at the exam.

The gamble retake. Maybe you had a fine day at the test, but you got a 690 and you're gunning for one of the top 10 or so programs, where the average score is just shy of 720 . You hear the standard error is 29 points, almost exactly the size of the increase you'd like. So you wonder whether you should gamble on a retake-simply take the test again and hope to do better.

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Here's a breakdown of the gamble retake. Let's consider three cases:

1. Say your true score (at your current skill level) is 690 . In this case, you are quite likely to get a 690 , or close to it, on a gamble retake. Moreover, you're as likely to get a 660 on your gamble retake as a 720 .
2. Say your true score at your current skill level is a 720 . This is the possibility you're focused on. In this case, your 690 score was somewhat off of your true score - not necessarily because you had a bad day, but perhaps due to statistical variation in scores. In this case, on your gamble retake, you're most likely to score at or near 720 .
3. Say your true score at your current skill level is a 660 . This case is a mirror image of case \#2. In this case, your 690 was indeed a fluke, but in your favor! You're likely to score at or near a 660 on your gamble retake, and you're just as likely to score under 660 as above 660.

There are other possibilities - your true score at your current skill level could be 710, or other scores. It could be 600 or 780 -but those cases are very unlikely (and if you like to gamble on those odds you may want to dedicate your b-school tuition to playing the lotto instead). In fact, the most likely case of all is \#1. Cases \#2 and \#3 are less likely - and they are also equally likely. So, even when you are 30,20 , or 10 points shy of your goal, the gamble retake is not a particularly good gamble. The risk posed by case \#3 is slightly mitigated by the fact that most schools will take your highest GMAT score. But, either way, a straight-up gamble retake will produce the same score more often than any other result - the most likely outcome is a simple waste of time and money. In general, only with a month or two of further study is a retake the right move.

## How to Evaluate Your Score

We now have the basic facts needed to evaluate your score - whether your GMAT score is "good enough" for your application. The standard error of about 30 points can be your guide here. But first, let's put evaluating your score in context.

On panels and in information sessions, business school admissions always clarify there is not a cut-off or hard threshold for GMAT scores. There is not a minimum GMAT score to get into any program, and there is no GMAT score that will guarantee admission at any program. The application has multiple components, and it's true that business school admissions officers care about who you are and often think of the application process as an opportunity to get to know you.

There is another view on the process: yes, your application is a balanced portfolio of GMAT, GPA, essays, and recommendations - but everything needs to be perfect. Moreover, in the 2010 iteration of our annual survey of business school admissions officers, admissions staff identified the GMAT as the most important element of the application and also as the \#1
"application killer." ${ }^{13}$ For more on the significance of the GMAT and how it fits into the business school admissions process, please see our many free resources on the subject at www.kaplanGMAT.com > The GMAT and www.kaplanGMAT.com > Business School.

Now, to evaluating your GMAT score. Schools publish the average GMAT score of their students. In fact, this average is one of the main inputs into school rankings, such as those of U.S. News $\mathcal{E}$ World Report. Simply put: if your GMAT score is exactly at the average for students at that program, then that program will view your GMAT score neutrally. Since it's right on par with current students, that GMAT score is "good enough" for the program but doesn't give you an advantage.

Your advantage or disadvantage on the GMAT is all relative to the average at the program. The average at top 10 programs in this year's rankings is about 720 (it's technically 718, but the GMAT is scored in increments of 10). Any score above 720 gives you an advantage in the admissions process, and any score below 720 puts you at a disadvantage.


A rule of thumb for evaluating the competitiveness of a GMAT score
Pretty obvious stuff so far. The key question is how much of an advantage higher scores give, and how much of a disadvantage lower scores give. This is where the standard error comes in. Remember, GMAC says, "reported GMAT Total score is within 29 points above or below a score reflecting true performance." So, admissions officers aren't going to split hairs over 10 points. They are, on the other hand, going to take differences of 30 points very seriously.

[^7]At the school where 720 is the average GMAT score, 750 gives a substantial advantage, and 690 suffers a substantial disadvantage.

It's not a coincidence that the $\pm 30$ rule of thumb appears over and over again. Thirty points starts to move the needle for your competitiveness partly because it's a substantial score improvement. And for that reason, the rule gives an estimate of how much your score can improve. Any improvement of more than 30 points is significant. As the test prep experts, we routinely see improvements of 100 and 150 points on the test, and sometimes more, but even a 30 point increase is nothing to sneeze at.

This completes our summary of the test as a whole. Next, we'll look at the GMAT at the question level. We'll come away with a few practical takeaways, some myths debunked, and some details about the test that you will be happy to forget in a few months.

## II. The Anatomy of a GMAT Question

## The Question Types

The GMAT has several types of question. Fortunately, the standardized format of the test lends itself to patterns-and the frequency of different questions is consistent across all test takers' tests.

The Quantitative section is made up predominantly of Problem Solving (PS) questions. Among roughly 23 or 24 of these questions, all math subjects are tested, but certain concepts averages, rates, and word problems, for instance - show up more often than others.

The remaining questions on the mathematics portion of the test are Data Sufficiency (DS) questions. These questions, unique to the GMAT, test your ability to determine whether a question can be answered - even if actually finding that answer would be impossible without a calculator and a lot of time. DS questions can be further divided into "value" questions and "yes/no" questions. The former make up about two-thirds of DS questions. On those questions, information yielding a single numerical possibility is deemed "sufficient," while information permitting multiple numerical solutions is considered "insufficient." "Yes/no" questions are less common, but require slightly different strategy, so recognizing them when they arise is a good way to boost your score. On these questions, data yielding the answers "always yes" and "always no" are sufficient, while data yielding "sometimes yes, sometimes no" are insufficient.

Regardless of the specific DS type you face, number properties and algebra with multiple variables will be tested frequently.
(A) Statement (1) ALONE is sufficient, but statement (2) is not sufficient to answer the question asked.
(B) Statement (2) ALONE is sufficient, but statement (1) is not sufficient to answer the question asked.
(C) BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient to answer the question asked.
(E) Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the question are needed.

The data sufficiency answer choices are unique to the GMAT
In the Verbal section, the GMAT tests students with three types of questions: Critical Reasoning (CR), Sentence Correction (SC), and Reading Comprehension (RC). The 41 verbal questions are divided more or less evenly among the types, although CR is slightly less common (12-14 questions) than SC (14-16 questions). RC (usually 14 questions) and CR also have their own sub-types. Critical Reasoning, in particular, rewards students who can distinguish Strengthen, Weaken, Assumption, and Flaw questions, all of which test the ability to deconstruct an argument, from Inference and Explain questions, which test other skills.

Don't worry too much about keeping count on Test Day. If you've prepared well, you'll be ready for whatever the test has to offer you, so guessing whether the last question will be a Weaken or an Explain question isn't going to help. But do think about these proportions as you prep. Say, for example, Sentence Correction and Yes/No DS questions are both giving you trouble. You'll face twice as many Sentence Correction questions on Test Day, so your study time should be allocated accordingly.

## The Question Topics

There is some stuff you need to know to succeed on the GMAT. For example, on the GMAT you're going to see algebra-the language of variables, such as the ever-popular $x$ and $y$, and how those variables are manipulated. Even a recent college graduate double-majoring in advanced math and advanced English is unlikely to start out familiar with all the topics on the test. So a review of the subject matter, or topic, or content, behind GMAT questions is in order for everyone.

The GMAT is a test for generalists. A person who is pretty good at all subjects - algebra, geometry, number properties, etc. - will do better than one who is very good at some and mediocre at others, even though they got the same number of questions right. This can be a real issue for some test takers, since most people are usually noticeably better at one area than the other. The implication is that you should spend more time on your weaknesses than your strengths. However, do not neglect your strengths, as they will still contribute to your overall score.

Dealing with topics they may not have seen for years will freak some students out, and they prepare by cramming as many formulas and grammar rules into their heads as they can. However, the scope of knowledge required by and rewarded on the GMAT is designed to be as small as possible. Many GMAT test takers at some point have faced or will face Certified Public Accountant (CPA) or Chartered Financial Analyst (CFA) exams. You have to absorb a lot of knowledge for those exams. In contrast, here's what the GMAC has to say about the content on the GMAT:

The math skills tested on the GMAT test are quite basic... The difficulty of GMAT Quantitative questions stems from the logic and analysis used to solve the problems and not the underlying math skills. ${ }^{14}$

If you have already begun GMAT review, you may recoil at this explanation and object that the math on the test is not so easy. What's important isn't whether the content is easy or hard it's that it's relatively limited. In other words, the content that you learn for the GMAT is just an entry requirement, not a success factor. Algebra, for example, is something that you learn just so that you can understand GMAT questions and work your way around them; you're going to

[^8]get ahead of the pack on these questions through your success in critical thinking -and that critical thinking may not have very much at all to do with knowledge of algebra.

Here's a high-level summary of what you need to know. On the Quantitative section, the basic foundations are:

1) Arithmetic - from long division to mental math;
2) Algebra - working with variables and solving for them; and
3) Geometry - formulas for basic shapes, such as right triangles.

The GMAT also tests sophisticated variations on a few simple equations, such as speed, rates, and averages. Other questions concern probability, the overlap among logical groupings of items, the different ways that items can be ordered or sorted, and properties of numbers such as their factors and multiplication rules.


In $\triangle A B C$ above, which of the three sides of $\triangle A B C$ is the longest?
(1) $y=x-15$
(2) $x=60$

This question requires basic knowledge of geometry, but hinges on the type of analysis characteristic to Data Sufficiency questions

The knowledge base required for the Verbal section is smaller. Critical Reasoning questions and Reading Comprehension questions and passages are designed to be self-contained, requiring no prior knowledge of the subjects they discuss. RC passages, in particular, may be rich with information. These passages alternately concern themselves with business, social science, and physical and natural sciences. Once you've tried a few Reading Comprehension passages, you'll notice that it's considerably easier to digest the passages that are about topics familiar to you, but you won't increase your score by crossing your fingers and hoping you get passages you're familiar with. Rather, the secret to high achievement on Reading Comprehension is mastery of reading itself-active reading, as we call it. The practiced, active reader can digest dense passages on completely foreign topics and will consistently emerge as a GMAT Verbal master.

Sentence Correction is the Verbal section for which you'll most likely have to brush up. While the Official Guide is rather brief in summarizing the math content you'll need to know for the Quant section, it's silent on such content for Sentence Correction. For this reason, applicants often get caught up studying grammar and rhetoric patterns that rarely appear on the test, if ever, such as homonym errors (e.g., "effect" vs. "affect") and the proper use of first- and second-person pronouns (e.g., "if there's a problem, please tell Rob or I [sic]."). The winning strategy is to brush up on the specific grammar patterns that the GMAT tests, focus on clear and precise communication, and work through a large number of realistic practice questions.

For further study of content, here are a few resources:

- Our 100 Hours GMAT Study Plan is an Excel schedule accompanied by a recorded session describing how to approach the study process. It's available for free at http://www.kaplanGMAT.com/blueprint.
- The Official Guide (http://amzn.to/GMATOG), published by the test makers, contains extremely brief, but information-rich, summaries of what is included on the test. Specifically, the "Math Review" 15 in that book clarifies that you may see trapezoids or complex polygons on the test (because they are in the Math Review); that you may see combination and permutation questions (because they are in the Math Review); but that you will not see trigonometry (because it's not in the Math Review). The Official Guide is included and incorporated into our GMAT program.
- Our courses and self-study aids cover everything tested on the GMAT. Good places to start are the GMAT Premier (http://amzn.to/GMATPremier) publication or the GMAT Advantage On Demand (http://bit.ly/GMATOnDemand) course for selfstudiers - or our GMAT Advantage course (http://bit.ly/GMATAdvantage), which is offered On Site and in our Classroom Anywhere environment.

A final note on the test's content: the test makers are explicit that the GMAT algorithm includes measures to balance the content you see. As the Official Guide puts it, "the test selects a specific number of questions of each type," such as arithmetic. ${ }^{16}$ There are a few practical implications here, and a couple of caveats worth noting. The implication is that you want to take a balanced approach to practicing GMAT question types. More specifically, you'll want to plug the holes in your preparation and focus on weak spots you are sure you'll be tested on. Note, however, that some question types and topics, such as permutations questions, are inherently more difficult. If you're scoring at, say, a 550 level, you won't see these questions and you want to prioritize your study of the more prominent topics first. Another caveat is that test takers' anecdotal reports of content balancing on the test vary widely. Don't be thrown off on test day if you see more or fewer of a particular topic than you expected.

[^9]
## Patterns in Questions

Given the content tested on the GMAT, many test takers identify the "stuff they need to know" for the test as a set of math skills and verbal skills, including some writing. But savvy test takers know that there is more to the game, including stress management and time management. We've already discussed the harsh penalties levied against test takers who do not complete a section. Answering every question is vital, but we can't just decide to work faster. When you ask your brain to speed up past its comfort level, it starts to skim and thereby makes mistakes. Simply working faster won't help raise your score.

The GMAT makers need to produce a constant stream of problems for new test takers. But they can't invent problems completely from scratch; beyond the obvious problems of workload, they would have a hard time testing the statistical viability of totally new question types. So, they use specific patterns - the same basic concepts and question structures-over and over again. Learning these patterns can be almost as effective as knowing the answers in advance. In the first session of our course (which you are welcome to attend as a sample class), we hammer on this point with GMAT Core Competencies. One of these Core Competencies - a higher-level skill-is pattern recognition. Pattern recognition lets you process more efficiently because you're dealing with large chunks instead of small details.

Two examples:

- One pattern tested frequently in Data Sufficiency questions is how to solve a system of equations. If you recognize that you have multiple propositions about multiple unknowns, and you remember the rule about needing a distinct equation for every variable, then you can quickly ascertain sufficiency without doing any real math. Your brain's chunks-per-minute rate isn't any higher, but since the chunks are larger, you end up covering more ground.
- Reading Comprehension passages come in only so many flavors. Passages are never extreme in tone, for example, and are never fictional or narrative in nature. Accordingly, the purpose of the author of a RC passage generally is one of seventhat's the pattern. If you recognize one of these purposes in the first paragraph and initial scan of a passage, the rest of the passage quickly falls into place. For instance, if you discern a "rebut" purpose, you know that you will be looking for a summary of a theory and the author's objections to it. The details and evidence related to those points will be most important, and any other details will be less directly important.

If you've gotten this far, you've covered the basics about GMAT questions. Most everyone who takes the test ends up familiar with the question types and with the notion that there are patterns of questions (that there are patterns, in fact, is one of the foundational principles of our GMAT prep program). Now we'll foray into less-traveled territory.

## Every Question has a Curve ${ }^{17}$

As we saw above, every question has a difficulty level. This fact is an important part of the whole story in which getting questions correct is "rewarded" with harder questions.

There's a little more to this story. After all, we covered the fact that the first question you get is an "average difficulty" level question, and that means approximately half the people get the question right, and half the people get it wrong. In a sense, for all the people who got the question right, it's an easy question, and in that same sense, it's a hard question for all the people who got it wrong. The difficulty of the question can be described by this entire pattern of responses, rather than just a number.

Let's take a closer look at this pattern for a 550-level question. Imagine that a complete and representative population of GMAT test takers got to tango with this question, and we tracked the results. The pattern of who got the questions right and wrong could, would, and should look something like this:


A question curve that levels around 550
Notice that we have changed what the axes stand for in this graph. We are counting the percentage of people who got the question correct, and we are ordering those percentages by the test taker's ability - rather, ability plus practice, since we know a great deal of practice goes into the test (more on that below). When you count how many people get the question right at all their different skill levels, we end up with a pretty, smooth curve. This curve makes a lot of sense when we examine the parts. Over on the right, where the test takers are very good, they

[^10]are almost certain to get the question correct. Those individuals are destined for top 10 b schools or work as Kaplan faculty or both. On the left, where the test takers are at the bottom of the pool, the odds of getting the question correct are almost zero.

Finally, in the middle, the curve flattens out. The 540-, 550-, and 560 -level test takers have about a $50 \%$ chance of getting the question right, and that's why the curve flattens out at a height corresponding to the $50 \%$ probability. That part reflects what we've already said: this is the first question on the test, and someone who is at the 550 level will get it right half of the time, on average. Also, the fact that the curve is nice and symmetrical indicates that it's balanced between people getting it right and people getting it wrong; on average, when you take everyone together, half the people get it right.

Take a look at this one. It's a different question, so it has a different curve.


A question curve that levels around 650
It's a similar shape, but stretched and shifted to the right. It's a harder question. Everyone below the 650 skill level is below the $50 \%$ height and therefore has a greater chance of getting this question wrong than getting it right. Also, if you look where the curve levels out for this one, you see that it's still at a height of $50 \%$, but that portion is now hovering over the 650 skill level. Just as, for the first question, 550-level people had even odds of answering correctly, so with this question it's the 650-level people who are the ones with the even odds.

This conversation is getting fairly technical (we are aware that we at Kaplan tend to be more interested in the details of the GMAT than our valued readers), but let's look at one more example, a trickier one.


## The curve for a 700-level question

This curve may appear deformed at first. Let's compare and contrast it with the previous question's curve. It has the same basic shape, but stretched. Like the other ones, it has a flat part, and like the other ones, that flat part is at the $50 \%$ height. But this one is way to the right. Now, according to the science of test questions these days, you never really know what kind of curve a question is going to have when your über-mathematicians and wordsmiths devise it; you just have to write it and collect the data on it to be able to see what the curve is (more on that process below). That's true for the test makers, and it's true for us as we do our best to write practice tests that are relevant study tools for Test Day.

If you were the test maker, and you had a question on your hands with this curve, you'd find this question un-useful in some respects and extra-useful in others. First, consider the test takers at skill levels of 700 and below. They all are doomed. 700 level? 200 level? They tend to get it wrong, so this question does not distinguish among them very efficiently. The first question we looked at did a much better job of telling those categories apart, because basically all 200-level people who see that question get it wrong, and basically all 700-levelers get it right.

Nevertheless, like Rudolph the Red-Nosed Reindeer, this question is very good at one thing. (And if you don't know who Rudolph is, don't worry; as we discuss below, that's not the kind of thing you need to know for the GMAT.) It's quite good at distinguishing between 700and 750 -level scorers. If you look at the $700-l e v e l$ portion of the axis, you can see that the curve is riding low, and test takers on that part of the curve are, most likely, going to answer this question incorrectly. But if you're a 750 -scorer, you're getting this question right. Telling the difference is what this question is perfect for: once you've moved into a section and demonstrated that you're in the 700-750 range, the test will dish up a question with a curve just like this one to help decide whether you belong at the top or the bottom of that range.

This question had a unique curve, and the upshot was it had a unique ability to distinguish between some test takers and others. The whole point of the GMAT is that it's meant to distinguish between the applicants who will be able to handle the coursework at a given business school program and the ones who won't. It's all about distinguishing among a competitive set in a fair and objective way. Toward that goal, each question has a job to do, which is to help in the task of distinguishing, and each question does it a little bit differently, based on the shape of its curve.

## Fair and Unfair Questions

If all the business about the curves hasn't put you into a deep slumber, then you'll note the following practical takeaways:

- "Bad" questions. How do the test makers whether a question is clearly written? It all comes back to the curve. They collect information on each individual question and look at the curve for that question, and - as you we've just seen - these curves give much more nuanced information than mere numbers give. Questions that have nonsensical curves are thrown out. ${ }^{18}$
- Fair and unfair questions. This point is similar to the preceding takeaway - and it goes along with the question of whether questions might be culture-biased and genderbiased. An extremely important consideration in constructing the GMAT (so the test makers tell us) is to make a test that is fair to people from diverse geographies and backgrounds. To give an example: a VP of Research at GMAC once narrated to members of our team that a prior Critical Reasoning question on the test concerned "skim milk." As it so happens, while the term "skim milk" is readily understood in the States, it does not carry equal meaning in India. Moreover, the kind of milk at stake in the question had nothing to do with the argument, the argument's conclusion, its critical assumptions, or anything substantially related to the question's correct answer. But seeing a foreign expression in the first few words of

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the question was distracting to some Indian test takers. That distraction was one that test takers from the U.S. didn't have to suffer, and therefore-however small it was-it was unfair.

The test makers avoid many such inequities through diligence and common sense, but they can also spot and eradicate unfair questions using the curves we discussed above. Just as they can collect the curve for a particular question, so can they collect the curve for that question for a particular group and conduct analysis called Differential Item Functioning (DIF). And if, for example, they see that Indians are getting the skim milk question wrong more than they should be, at all of the different skill levels of the Indian test takers, they have the opportunity to reexamine that question and uncover the point of cultural bias if it hadn't been picked up through human review initially. ${ }^{19}$

## Not All Questions are Worth the Same

Have you harbored a conviction all along that some GMAT questions are worth more than others? If so, you have been right, at least vaguely. We saw in our examination above that each question has a different curve. Each is unique in its ability to slice and dice test taker ability. And so it makes sense that each question has a different opportunity to impact your score. We saw a question above that had a curve perfectly constructed to distinguish 700-level scorers from 750-level scorers. If you are a 750-level scorer, or aspire to be, that question may be one of the most important questions you see on Test Day. It will actually create a larger swing in your running score than the previous or following question will. Meanwhile, if you are a 680 scorer working to break 700 at this point, that particular question is of little relevance to you: if you see it (and you may not) you can get it wrong and doing so would not do much to hurt your goal of scoring 700+.

Let's return to the first ten questions. As we've already discussed, the first series of questions helps determine your rough placement on the difficulty scale. And we've also discussed how questions appearing later on the exam can be quite important, as well. The curves help explain both points. Many of the questions near the beginning of the exam will have curves designed to separate 600 from 400, 650 from 600, 670 from 630, and so on. But all of these questions have different swings. There are reasons to suspect that you might see questions with big swings later in a section. As we discussed, a question's curve is difficult to pre-engineer, so you may face big swings through a result of randomness. And there is every possibility that questions with larger swings are inserted by the test maker later on intentionally. Now this statement from GMAC makes more sense: "The questions in an adaptive test are weighted

[^12]according to their difficulty and other statistical properties, not according to their position in the test." ${ }^{20}$ The curves are key, not a question's placement per se.

You have only one choice: give every question a fair look. Give easy-looking questions a quick look for pitfalls. Be open to guessing on harder-looking questions (more on that strategy below). Take a balanced approach to time-management (more on that strategy, also). Don't be too quick to count any question as one you'll definitely get right or definitely get wrong.

## Experimental Questions-the What and the Why

A common question about the GMAT is, "How can I recognize experimental questions?"
The answer, unfortunately, is you can't.
Like all standardized test makers, the GMAC needs mountains of statistical data to ensure its scores are fair, accurate, and reliable. The test maker can't rely solely on past questions - new techniques, question types, and subjects need to be tested on a regular basis. Thus, each test taker will face a few non-scored questions that the GMAC will use to help calibrate future tests. In the lingo that we have just discussed above, the test makers need to collect enough information about a new question to know what its curve is - to make sure that the curve is a legitimate shape, and also to know the question's difficulty.

Those questions can appear anywhere and take any format. In other words, they don't have any distinguishing features. If you engage in the business of guessing what questions are experimental you are doomed to failure. After all, as candidates for inclusion on the test, experimental questions are meant to be equal to all other questions on the test. And generally they will be the same or will be close. In this respect, the term that the GMAC uses to describe experimental questions - "trial questions" - is more accurate.

The best practice is to forget that experimental or trial questions exist. Treat every question as if it counts, stay focused on the problem in front of you, and pace yourself for maximum performance.

[^13]
## III. Practice and Performance

## Pacing throughout the Section

The GMAT is a test of both accuracy and speed. There is a substantial penalty for not finishing a section, as we've seen. But there is no need to think of the GMAT as a race. In fact, the test makers are clear that the test has been designed not to be a race:

The GMAT is optimally timed so that most test takers do finish the first time they sit for the test. Those who don't often retake the exam, and almost all do finish the second time. ${ }^{21}$

You want to be among the group that finishes the test the first time you take it. Also, beyond simply answering every question - possibly with some sloppy guesses near the end -or taking the test too quickly (which does happen), you want to finish the test on time for your maximum possible score.


## Spending extra time at the beginning of a section can lead to failure at the end of the section

You can pace yourself on both the Quantitative and Verbal sections, broadly speaking, by dividing the section into three parts:

- the first ten questions,
- the last ten questions, and
- everything in between.

Each part has its own strategy.

[^14]- The first ten questions. Given what we've covered above, you now know everything you need to pace yourself on the first ten questions. To recap: the first questions are likely to produce some large swings in your score, but you will see larger swings later on, and it's important to finish just as strong as you start. The theme of these ten questions: proceed diligently, keep an eye out for pitfalls, and avoid preventable errors.
- The middle segment. Regardless of how the first ten questions go, you're almost certain find some challenges in this segment. Most test takers will "top out." Topping out means that you will be unable to solve any more difficult problems and you will begin to hover around your skill level, getting about half right and half wrong. The great danger at this point in the test is that you will feel you ought to be able to "get" every problem and you will spend too much time on some of them. Since time spent here comes out of problems worked later, this can be dangerous, and so you must do some guessing, just to keep it going. Fortunately, if you've budgeted your minutes well, you will have some time to give your guesses a little thought. The theme of the middle segment: stay on pace, keep your morale high, and make shrewd guesses where necessary.
- The final ten questions are the home stretch. You're trying to finish before the bell rings. Here you must pick your questions. Make an effort not to guess on more than one or two questions in a row. As time draws nigh, alternate any guesses that you need to make, rather than saving them for a series at the end. (More on guesses in a moment.) Doing so will increase your options to solve without guessing, decrease the odds of accidentally running out of time, and most likely reduce the score drop from questions answered incorrectly. The theme of this segment: choose your questions, and finish on time.
Now you're done. You've maximized your payoff. It can be exciting setting a pace and sticking to it, and guessing on the stickiest questions can reduce your anxiety and frustration. Let's talk briefly about the art and science of guessing on the GMAT.


## Guessing

Trying every question on a section thoroughly is not always possible. Sometimes one does not know the relevant pattern, and sometimes one cannot get through the calculations quickly enough. These situations call for guessing.

Nobody likes to guess. It feels like giving up. But that's the wrong way to look at it. Think of it as a reinvestment of resources. If you spend four minutes on a problem, it's probably because you don't understand it and you will probably get it wrong. What if you had recognized that you weren't going to get it after 30 seconds of effort? You would guess, and you might still get it wrong, but you would definitely have three-and-a-half minutes to invest on

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other problems. With that much time, you might have gotten two or three more correct. That's a net gain.

What is the maximum amount of time that you should spend on a problem? The average amount of time you should spend on a math problem is two minutes. You probably spend less than two minutes on some, so you can afford to spend more than two on some. As an upper limit, let us say you should spend no more than three minutes on a math problem. If you can tell that you probably won't get a math problem right within three minutes when you look at it, then you should guess right away.

By the same logic, the upper limit on Sentence Corrections should be two minutes, on Critical Reasoning problems, three minutes and on Reading Comp questions, two minutes. Once you hit the upper limit you should strongly lean toward guessing, unless you are seconds away from an answer. You must know when to cut your losses.

Some guessing strategies:

- By Data Sufficiency answer choices. Attempt to categorize a data sufficiency question as rich or poor in data. Does the stem include much data? How promising do the data statements appear? Then guess within answer choices A, B, and D for the datarich questions, and within answer choices $\mathrm{C}, \mathrm{E}$ for the data-poor questions.
- By Reading Comprehension tone and main idea. If you have gauged the degree of opinion in a Reading Comprehension passage, and possibly the main idea, you can make fair-odds guesses on all Reading Comprehension questions. Do this by matching what you have learned about tone and main idea with the answer choices-even answer choices in Detail questions that you do not have time to research. For example, the correct answer to a question about a passage that is neutral in tone is unlikely to reflect a strong opinion.
- By pattern recognition. As we discussed above, you can attempt to compare a tough question, or one you don't have time for, to a question you have seen at your leisure during practice, and make a guess accordingly.
- By eliminating the impossible. On a tricky or rushed Problem Solving question, attempt to identify at least one answer choice that must be impossible. For example, on a question about speed, distance and time, you might be able to calculate that a particular answer choice is not fast or far enough, without doing the exact math. Eliminating one answer choice may even help you eliminate another one, and may also guide your thinking in which of the possible answer choices is the most probable one.
Think of guessing as part of the GMAT game, not as any reflection on your abilities. You absolutely, unequivocally can make guesses on both Quantitative and Verbal sections and emerge with a 760 or higher on the GMAT. Embrace guessing, make it yours, and reap the results.


## Practice Tests

Practice tests are a central part of any successful test prep strategy. They prepare your endurance and pacing, and ensure that you face a test-like variety of subject matter. However, no practice test is perfect-it's important to understand how your tests are test-like, and how they aren't, so you can prepare for the real thing.

There are three main sources of practice tests to highlight:

1. GMATPrep. The test makers provide two free practice tests, called GMATPrep, on mba.com. ${ }^{22}$ These tests contain the content most like that on the real test. The problems are written by the actual test makers, and the scores use the same adaptive algorithm as the real test. But beware: these tests don't have any explanations for their problems. Make sure that you don't take these practice exams until you have a solid enough understanding of GMAT content and strategy that you can self-correct when you're done.
2. Kaplan GMAT CATs work a little differently. On our CATs, there is a small selection that is partially adaptive, and sometimes a small question set that is fixed, but the majority of the test adapts at the question level. The scoring isn't quite as precise, but from a practice perspective it functions just as the real test: perform well and you're rewarded with a crack at high-difficulty high-value questions. The questions on your Kaplan CAT are all written by Kaplan, but we are careful to mimic the content, difficulty, and tone of GMAT material, while taking care not to copy official test material. You shouldn't be able to tell the difference between Kaplan CATs and what you see on Test Day. In our experience, most perceived differences between the tests are differences in perception only.
3. The Official Test Day Experience (http://bit.ly/GMATExperience) is an option for you if you are registered in a Kaplan GMAT program. It's the opportunity to take any of your Kaplan GMAT CATs at an actual testing center under testing conditions. A key difference between practice tests and the real thing is pressure. You'll take the GMAT under the watchful eye of proctors and cameras, with months of practice and prep on the line. For some students this pressure enables them to shine, but others struggle. The realism of the Official Test Day Experience addresses the stress head-on and reduces points left on the table on Test Day due to execution factors.
[^15]
## Staying Motivated

We talked above, in Part II, about how to evaluate your GMAT score against the competition for a specific school. Understanding your progress along the way - or seeming lack of progress - is an entirely different challenge.

Sometimes your score on a practice test just doesn't make sense. You've been studying hard. You felt good during the test. Why did you get no score increase, or even a decrease?

If your score isn't as high as you would like, it's important to put it in context. For example, Kaplan has long noted that on the second practice test (with the diagnostic being the first), people often see a score decrease. That is because Kaplan is filling their heads with new methods and people haven't gotten used to them. By analogy, touch-typing is much more efficient than hunt-and-peck, but when you're learning to touch-type, every move is agonizingly thought out, and the hunt-and-pecker is (temporarily) faster. This problem can last for a couple of tests.

## Other possible explanations:

- Test conditions are what most people think of first. Did you take the test after a long day of work? Did you check your email during the test? Such factors could cause you to score under your "true performance." But an important caveat is in order: rather than blame your score on your Blackberry, you should try to block out the time for a more realistic practice test (the Official Test Day Experience can be helpful for the email-checkers) and get a more reliable data point.
- Not finishing the sections is a common problem. That is one of the first things you should review when you open up a test. Consider whether you spent too much time on any particular questions, and whether you followed through on your time management strategy as outlined above.
- One frequent cause on the Quant side is not learning the formulas. This is a necessary step to GMAT success. Use the formulas/methods sheet. Use the Pocket Reference. If you decide to learn the formulas, you will. If you have to, make flash cards.
- On the verbal side, the common culprits are dropping the methods, especially in Reading Comp and Critical Reasoning. People do this either because they're too scared to think or because they're worried that the methods will take too much time. Paradoxically, investing the time into executing the method results in a net savings of time because you spend fewer seconds debating the merits of the answers with yourself: You just look for a match to your prediction.
An example on the last point from one of our faculty: "I once had a student who came back to us because she had gotten a disappointing score of 480 . I worked with her awhile and discovered she had panicked and dropped all the methods. I reviewed them with her and
encouraged her to stick with them. In a month she took the test again and received a score of 640. In her case, just following the methods was worth 160 points."

Many times, the cure is more practice. The magic number here is 100 hours, the average level of preparation (including class time) for all 600+ and 700+ scorers on the GMAT, according to a survey by the test makers. If your score improvement is falling short, but your total practice time is substantially under 100 hours, you probably need to put in more quality practice. On the other hand, if your total prep time has reached or exceeded 120 hours and you're not seeing score improvement and you're trying to apply the methods you've learned, you should consider working with a tutor. A tutor who is both a GMAT expert and who has worked with many students may help you uncover a systematic performance block, such as poor scratchwork, in relatively short order. Uncovering and addressing such a performance block can yield sudden score increases as the hours of practice that you put in previously get an opportunity to manifest themselves.

Remember, you are never alone in your practice. You've always got your teacher or tutor and anyone can ask questions on Facebook (http://www.facebook.com/KaplanGMAT) or Twitter (http://www.twitter.com/KaplanGMATPrep).


[^0]:    ${ }^{1}$ http://www.mba.com/the-gmat/gmat-scores-and-score-reports/what-your-percentile-ranking-means
    ${ }^{2}$ http://www.gmac.com/gmac/NewsandEvents/GMNews/2011/Apr/Demystifying-the-GMAT-ScaleScores.htm?Page=1

[^1]:    ${ }^{3}$ http://www.mba.com/the-gmat/gmat-scores-and-score-reports/what-your-percentile-ranking-means

[^2]:    ${ }^{4}$ http://www.mba.com/the-gmat/gmat-scores-and-score-reports/what-your-percentile-ranking-means
    5 http://www.mba.com/mba/thegmat/gmatscoresandscorereports/whatyourpercentilerankingmeans.htm

[^3]:    ${ }^{6}$ http://www.mba.com/the-gmat/gmat-scores-and-score-reports.aspx

[^4]:    ${ }^{7}$ As you may have guessed, question difficulty isn't measured on scale of 200 to 800 . After all, the Quantitative and Verbal sections are scored separately and not even scored on a 200 to 800 scale themselves. The reality is that question difficulty has its own unique measure, both on the GMAT and also on our practice tests.

[^5]:    ${ }^{8}$ Official Guide to GMAT Review, 12th edition, pg. 8.
    ${ }^{9}$ Official Guide to GMAT Review, 12th edition, pg. 17.

[^6]:    ${ }^{10}$ Official Guide to GMAT Review, 12th edition, pg. 17.
    ${ }^{11}$ http://www.gmac.com/gmac/thegmat/gmatbasics/whyrelyongmatscores.htm
    12 http://www.gmac.com/gmac/thegmat/gmatbasics/whyrelyongmatscores.htm

[^7]:    ${ }^{13}$ Kaplan Business School Admissions Officers Survey, 2010 (http://bit.ly/BSchoolSurvey2010).

[^8]:    ${ }^{14}$ Official Guide to GMAT Review, 12th edition, pg. 15.

[^9]:    ${ }^{15}$ Official Guide to GMAT Review, 12th edition, pg. 106.
    ${ }^{16}$ Official Guide to GMAT Review, 12th edition, pg. 8.

[^10]:    ${ }^{17}$ This section is based primarily on spoken remarks at the 2010 GMAC Test Prep Summit.

[^11]:    ${ }^{18}$ Imagine a curve that looks like a parabola with negative concavity (yes, there is a slight chance you'll see a question related to parabolas on Test Day; as always, when in doubt you can consult the ever-succinct Math Review in the Official Guide). This shape has a high point and then curves downward on both sides from that point, symmetrical on the left and right, like an " $n$ " shape. It's an odd shape for a curve, but it can happen. The people whose skill level is at the parabola's high point (say, 670) are the ones who get the question wrong the most. Then, we head to the left. That part makes sense: people at lower skill levels get the question right less often. The confusing part is when we head to the right of the topmost point. Those people are higher in skill level, but they get the question right less often? There's probably something wrong with the curve, because people who are generally higher-skill are going to get the question wrong and get penalized. And, in fact, a question often has this curve because it has been phrased confusingly or inaccurately. If a question is a good 670-level question, but has a small error or ground for misinterpretation that 700+ test takers are conditioned to notice, it may reward the 670level test takers and falsely penalize the 700 test takers. Such a question can deemed "unfair" on scientific grounds-from the curve-and it never graduates from being an experimental question into the ranks of questions that count toward GMAT scores.

[^12]:    ${ }^{19}$ And so, if you don't know who Rudolph the Red-Nosed Reindeer is, you can breathe easy. You don't need to know it for the GMAT any more than you need to know the three primary medicinal uses of ginseng.

[^13]:    ${ }^{20}$ http://www.mba.com/the-gmat/test-structure-and-overview/format-and-timing.aspx

[^14]:    ${ }^{21}$ http://www.gmac.com/gmac/NewsandEvents/GMNews/2011/Jan/Demystifying-the-GMAT-Allotted-TestTime.htm?Page=3

[^15]:    ${ }^{22}$ http://www.mba.com/mba/TheGMAT/DownloadFreeTestPreparationSoftware/

