

**GMAT® Official Guide 2019
Quantitative Review**

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1.0 What Is the GMAT[®] Exam?

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The Graduate Management Admission Test® (GMAT®) exam is a standardized exam used in admissions decisions by more than 7,000 graduate management programs worldwide, at approximately 2,300 graduate business schools worldwide. It helps you gauge, and demonstrate to schools, your academic potential for success in graduate-level management studies.

The four-part exam measures your Analytical Writing, Integrated Reasoning, Verbal, and Quantitative Reasoning skills—higher-order reasoning skills that management faculty worldwide have identified as important for incoming students to have. “Higher-order” reasoning skills involve complex judgments, and include critical thinking, analysis, and problem solving. Unlike undergraduate grades and curricula, which vary in their meaning across regions and institutions, your GMAT scores provide a standardized, statistically valid, and reliable measure of how you are likely to perform academically in the core curriculum of a graduate management program. The GMAT exam’s validity, fairness, and value in admissions have been well-established through numerous academic studies.

The GMAT exam is delivered entirely in English and solely on a computer. It is not a test of business knowledge, subject-matter mastery, English vocabulary, or advanced computational skills. The GMAT exam also does not measure other factors related to success in graduate management study, such as job experience, leadership ability, motivation, and interpersonal skills. Your GMAT score is intended to be used as one admissions criterion among other, more subjective, criteria, such as admissions essays and interviews.

1.1 Why Take the GMAT® Exam?

Launched in 1954 by a group of nine business schools to provide a uniform measure of the academic skills needed to succeed in their programs, the GMAT exam is now used by more than 7,000 graduate management programs at approximately 2,300 institutions worldwide.

Taking the GMAT exam helps you stand out in the admissions process and demonstrate your readiness and commitment to pursuing graduate management education. Schools use GMAT scores to help them select the most qualified applicants—because they know that candidates who take the GMAT exam are serious about earning a graduate business degree, and it’s a proven predictor of a student’s ability to succeed in his or her chosen program. When you consider which programs to apply to, you can look at a school’s use of the GMAT exam as one indicator of quality. Schools that use the GMAT exam typically list score ranges or average scores in their class profiles, so you may also find these profiles helpful in gauging the academic competitiveness of a program you are considering and how well your performance on the exam compares with that of the students enrolled in the program.

No matter how you perform on the GMAT exam, you should contact the schools that interest you to learn more and to ask how they use GMAT scores and other criteria (such as your undergraduate

Myth -vs- **FACT**

M – If I don’t achieve a high score on the GMAT, I won’t get into my top choice schools.

F – There are great schools available for candidates at any GMAT score range.

Fewer than 50 of the more than 250,000 people taking the GMAT exam each year get a perfect score of 800; and many more get into top business school programs around the world each year. Admissions Officers use GMAT scores as one component in their admissions decisions, in conjunction with undergraduate records, application essays, interviews, letters of recommendation, and other information when deciding whom to accept into their programs. Visit School Finder on mba.com to learn about schools that are the best fit for you.

grades, essays, and letters of recommendation) in their admissions processes. School admissions offices, web sites, and materials published by schools are the key sources of information when you are doing research about where you might want to go to business school.

For more information on the GMAT, test preparation materials, registration, how to use and send your GMAT scores to schools, and applying to business school, please visit mba.com.

1.2 GMAT® Exam Format

The GMAT exam consists of four separately timed sections (see the table on the next page). The Analytical Writing Assessment (AWA) section consists of one essay. The Integrated Reasoning section consists of graphical and data analysis questions in multiple response formats. The Quantitative and Verbal Reasoning sections consist of multiple-choice questions.

The Verbal and Quantitative sections of the GMAT exam are computer adaptive, which means that the test draws from a large bank of questions to tailor itself to your ability level, and you won't get many questions that are too hard or too easy for you. The first question will be of medium difficulty. As you answer each question, the computer scores your answer and uses it—as well as your responses to all preceding questions—to select the next question.

Computer-adaptive tests become more difficult the more questions you answer correctly, but if you get a question that seems easier than the last one, it does not necessarily mean you answered the last question incorrectly. The test has to cover a range of content, both in the type of question asked and the subject matter presented.

Because the computer uses your answers to select your next questions, you may not skip questions or go back and change your answer to a previous question. If you don't know the answer to a question, try to eliminate as many choices as possible, then select the answer you think is best.

Though the individual questions are different, the mix of question types is the same for every GMAT exam. Your score is determined by the difficulty and statistical characteristics of the questions you answer as well as the number of questions you answer correctly. By adapting to each test-taker, the GMAT exam is able to accurately and efficiently gauge skill levels over a full range of abilities, from very high to very low.

The test includes the types of questions found in this book and online at gmat.wiley.com, but the format and presentation of the questions are different on the computer. When you take the test:

- Only one question or question prompt at a time is presented on the computer screen.
- The answer choices for the multiple-choice questions will be preceded by circles, rather than by letters.

Myth -vs- FACT

M – Getting an easier question means I answered the last one wrong.

F – You should not become distracted by the difficulty level of a question.

Most people are not skilled at estimating question difficulty, so don't worry when taking the test or waste valuable time trying to determine the difficulty of the question you are answering.

To ensure that everyone receives the same content, the test selects a specific number of questions of each type. The test may call for your next problem to be a relatively hard data sufficiency question involving arithmetic operations. But, if there are no more relatively difficult data sufficiency questions involving arithmetic, you might be given an easier question.

- Different question types appear in random order in the multiple-choice and Integrated Reasoning sections.
- You must select your answer using the computer.
- You must choose an answer and confirm your choice before moving on to the next question.
- You may not go back to previous screens to change answers to previous questions.

Format of the GMAT® Exam		
	Questions	Timing
Analytical Writing Assessment	1	30 min.
Integrated Reasoning Multi-Source Reasoning Table Analysis Graphics Interpretation Two-Part Analysis	12	30 min.
Quantitative Reasoning Problem Solving Data Sufficiency	31	62 min.
Verbal Reasoning Reading Comprehension Critical Reasoning Sentence Correction	36	65 min.
Total Time:		187 min.

You will now have the flexibility to select the order for the section of the GMAT exam from three options.

Order #1	Order #2	Order #3
Analytical Writing Assessment	Verbal	Quantitative
Integrated Reasoning		
Optional 8-minute break		
Quantitative	Quantitative	Verbal
Optional 8-minute break		
Verbal	Integrated Reasoning	Integrated Reasoning
	Analytical Writing Assessment	Analytical Writing Assessment

The section order selection will take place at the test center on exam date, immediately prior to the start of the GMAT exam.

1.3 What Is the Content of the Exam Like?

The GMAT exam measures higher-order analytical skills encompassing several types of reasoning. The Analytical Writing Assessment asks you to analyze the reasoning behind an argument and respond in writing; the Integrated Reasoning section asks you to interpret and synthesize information from multiple sources and in different formats to make reasoned conclusions; the Quantitative section asks you to reason quantitatively using basic arithmetic, algebra, and geometry; and the Verbal section asks you to read and comprehend written material and to reason and evaluate arguments.

Test questions may address a variety of subjects, but all of the information you need to answer the questions will be included on the exam, with no outside knowledge of the subject matter necessary. The GMAT exam is not a test of business knowledge, English vocabulary, or advanced computational skills. You will need to read and write in English and have basic math and English skills to perform well on the test, but its difficulty comes from analytical and critical thinking abilities.

The questions in this book are organized by question type and from easiest to most difficult, but keep in mind that when you take the test, you may see different types of questions in any order within each section.

1.4 Analytical Writing Assessment

The Analytical Writing Assessment (AWA) consists of one 30-minute writing task: Analysis of an Argument. The AWA measures your ability to think critically, communicate your ideas, and formulate an appropriate and constructive critique. You will type your essay on a computer keyboard.

1.5 Integrated Reasoning Section

The Integrated Reasoning section highlights the relevant skills that business managers in today's data-driven world need in order to analyze sophisticated streams of data and solve complex problems. It measures your ability to understand and evaluate multiple sources and types of information—graphic, numeric, and verbal—as they relate to one another. This section will require you to use both quantitative and verbal reasoning to solve complex problems and solve multiple problems in relation to one another.

Four types of questions are used in the Integrated Reasoning section:

- Multi-Source Reasoning
- Table Analysis
- Graphics Interpretation
- Two-Part Analysis

Integrated Reasoning questions may be quantitative, verbal, or a combination of both. You will have to interpret graphics and sort tables to extract meaning from data, but advanced statistical knowledge and spreadsheet manipulation skills are not necessary. You will have access to an on-screen calculator with basic functions for the Integrated Reasoning section, but note that the calculator is *not* available on the Quantitative section.

1.6 Quantitative Section

The GMAT Quantitative section measures your ability to reason quantitatively, solve quantitative problems, and interpret graphic data.

Two types of multiple-choice questions are used in the Quantitative section:

- Problem Solving
- Data Sufficiency

Both are intermingled throughout the Quantitative section, and require basic knowledge of arithmetic, elementary algebra, and commonly known concepts of geometry.

To review the basic mathematical concepts that you will need to answer Quantitative questions, see the math review in chapter 3. For test-taking tips specific to the question types in the Quantitative section, practice questions, and answer explanations, see chapters 4 and 5.

1.7 Verbal Section

The GMAT Verbal section measures your ability to read and comprehend written material and to reason and evaluate arguments. The Verbal section includes reading sections from several different content areas. Although you may be generally familiar with some of the material, neither the reading passages nor the questions assume detailed knowledge of the topics discussed.

Three types of multiple-choice questions are intermingled throughout the Verbal section:

- Reading Comprehension
- Critical Reasoning
- Sentence Correction

All three require basic knowledge of the English language, but the Verbal section is not a test of advanced vocabulary.

For test-taking tips specific to each question type in the Verbal section, practice questions, and answer explanations, see *GMAT® Official Guide 2019*, or *GMAT® Official Guide Verbal Review 2019*; both are available for purchase at mba.com

1.8 What Computer Skills Will I Need?

The GMAT exam requires only basic computer skills. You will type your AWA essay on the computer keyboard using standard word-processing keystrokes. In the Integrated Reasoning and multiple-choice sections, you will select your responses using either your computer mouse or the keyboard. The Integrated Reasoning section includes basic computer navigation and functions, such as clicking on tabs and using drop-down menus to sort tables and select answers. You will also have access to an on-screen calculator in the Integrated Reasoning section (calculator is not available in any other section of the exam).

1.9 What Are the Test Centers Like?

The GMAT exam is administered under standardized conditions at test centers worldwide. Each test center has a proctored testing room with individual computer workstations that allow you to sit for the exam under quiet conditions and with some privacy. You will be able to take two optional 8-minute breaks during the course of the exam. You may not take notes or scratch paper with you into the testing room, but an erasable notepad and marker will be provided for you to use during the test. For more information about exam day visit mba.com.

1.10 How Are Scores Calculated?

Verbal and Quantitative sections are scored on a scale of 6 to 51, in one-point increments. The Total GMAT score ranges from 200 to 800 and is based on your performance in these two sections. Your score is determined by:

- The number of questions you answer
- The number of questions you answer correctly or incorrectly
- The level of difficulty and other statistical characteristics of each question

Your Verbal, Quantitative, and Total GMAT scores are determined by an algorithm that takes into account the difficulty of the questions that were presented to you and how you answered them. When you answer the easier questions correctly, you get a chance to answer harder questions, making it possible to earn a higher score. After you have completed all the questions on the test, or when your time is expired, the computer will calculate your scores. Your scores on the Verbal and Quantitative sections are combined to produce your Total score which ranges from 200 to 800 in 10-point increments.

The Analytical Writing Assessment consists of one writing task. Your essay will be scored two times independently. Essays are evaluated by college and university faculty members from a variety of disciplines, including management education, who rate the overall quality of your critical thinking and writing. (For details on how readers are qualified, visit mba.com.) In addition, your response is also scored by an automated scoring program designed to reflect the judgment of expert readers.

Your essay is scored on a scale of 0 to 6, in half-point increments, with 6 being the highest score and 0 the lowest. A score of zero is given for responses that are off topic, are in a foreign language, merely attempt to copy the topic, consist only of keystroke characters, or are blank. Your AWA score is typically the average of two independent ratings. If the independent scores vary by more than a point, a third reader adjudicates, but because of ongoing training and monitoring, discrepancies are rare.

Your Integrated Reasoning section is scored on a scale of 1 to 8, in one-point increments. Many questions have multiple parts, and you must answer all parts of a question correctly to receive credit; partial credit will not be given.

Your Analytical Writing Assessment and Integrated Reasoning scores are computed and reported separately from the other sections of the test and have no effect on your Verbal, Quantitative, or Total scores. The schools that you have designated to receive your scores may receive a copy of your Analytical Writing Assessment essay with your score report. Your own copy of your score report will not include your essay.

Your GMAT score includes a percentile ranking that compares your skill level with other test-takers from the past three years. The percentile rank of your score shows the percentage of tests taken with scores lower than your score. Every July, percentile ranking tables are updated. Visit mba.com to view the most recent percentile rankings tables.

1.11 Test Development Process

The GMAT exam is developed by experts who use standardized procedures to ensure high-quality, widely-appropriate test material. All questions are subjected to independent reviews and are revised or discarded as necessary. Multiple-choice questions are tested during GMAT exam administrations. Analytical Writing Assessment tasks are tested on mba.com registrants and then assessed for their fairness and reliability. For more information on test development, visit mba.com.