

Practice Book
for the Paper-delivered

GRE® General Test

Third Edition

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Visit www.ets.org/gre/prepare for information about additional GRE test preparation materials and services.

Test takers with disabilities or health-related needs who need test preparation materials in an alternate format should contact the ETS Office of Disability Services at stassd@ets.org.

For additional information, visit www.ets.org/gre/disabilities.

General Test Overview

The GRE® General Test measures verbal reasoning, quantitative reasoning, critical thinking and analytical writing skills—skills that have been developed over a long period of time and are not related to a specific field of study but are important for all. The test features question types that reflect the kind of thinking you will do and the skills you need to succeed in graduate, business and law school.

This publication provides an overview of each of the three measures of the paper-delivered GRE General Test offered with certain testing accommodations to help you get ready for test day. It is designed to help you:

- understand what is being tested
- gain familiarity with the question types
- review test-taking strategies
- become familiar with the calculator that will be distributed on test day
- understand scoring
- practice taking the test

Test Structure

The paper-delivered GRE General Test contains one Analytical Writing section, two Verbal Reasoning sections and two Quantitative Reasoning sections.

Total testing time is approximately 2 hours and 15 minutes. The directions at the beginning of each section specify the total number of questions in the section and the time allowed for the section. The Analytical Writing section is always presented first.

Sections and Timing of Paper-delivered GRE General Test

Measure	Number of Questions	Time
Analytical Writing	1 essay task	30 minutes
Verbal Reasoning (2 sections)	Section 1: 15 questions Section 2: 20 questions	Section 1: 21 minutes Section 2: 28 minutes
Quantitative Reasoning (2 sections)	Section 1: 15 questions Section 2: 20 questions	Section 1: 24 minutes Section 2: 32 minutes

You will enter your responses for the Analytical Writing task and the Verbal Reasoning and Quantitative Reasoning questions in the test book itself. You are allowed to use a basic hand-held calculator on the Quantitative Reasoning sections. The calculator will be provided to you at the test site; you may not use your own calculator. Information about using the calculator to help you answer questions appears on page 6.

Analytical Writing Measure

The Analytical Writing measure assesses your critical thinking and analytical writing skills. It assesses your ability to articulate and support complex ideas, construct and evaluate arguments, and sustain a focused and coherent discussion. It does not assess specific content knowledge.

The Analytical Writing task presents an opinion on an issue of general interest followed by specific instructions on how to respond to that issue. You are required to evaluate the issue, consider its complexities and develop an argument with reasons and examples to support your views.

[Learn more](#) about the Analytical Writing measure.

Verbal Reasoning Measure

The Verbal Reasoning measure assesses your ability to:

- analyze and draw conclusions from discourse; reason from incomplete data; identify author's assumptions and/or perspective; understand multiple levels of meaning, such as literal, figurative and author's intent
- select important points; distinguish major from minor or irrelevant points; summarize text; understand the structure of a text
- understand the meaning of individual words, sentences and entire texts; understand relationships among words and among concepts

Verbal Reasoning questions appear in several formats. About half of the measure requires you to read passages and answer questions based on those passages. The other half requires you to read, interpret and complete existing sentences, groups of sentences or paragraphs.

[Learn more](#) about the Verbal Reasoning section.

Quantitative Reasoning Measure

The Quantitative Reasoning measure assesses your:

- basic mathematical skills
- understanding of elementary mathematical concepts
- ability to reason quantitatively and to model and solve problems with quantitative methods

Some of the questions in the measure are posed in real-life settings, while others are posed in purely mathematical settings. The skills, concepts, and abilities are tested in the four content areas below.

- **Arithmetic** topics include properties and types of integers, such as divisibility, factorization, prime numbers, remainders, and odd and even integers; arithmetic operations, exponents, and roots; and concepts such as estimation, percent, ratio, rate, absolute value, the number line, decimal representation and sequences of numbers.
- **Algebra** topics include operations with exponents; factoring and simplifying algebraic expressions; relations, functions, equations and inequalities; solving linear and quadratic equations and inequalities; solving simultaneous equations and inequalities; setting up equations to solve word problems; and coordinate geometry, including graphs of functions, equations, and inequalities, intercepts, and slopes of lines.
- **Geometry** topics include parallel and perpendicular lines, circles, triangles—including isosceles, equilateral, and 30° - 60° - 90° triangles—quadrilaterals, other polygons, congruent and similar figures, three-dimensional figures, area, perimeter, volume, the Pythagorean theorem and angle measurement in degrees. The ability to construct proofs is not tested.
- **Data analysis** topics include basic descriptive statistics, such as mean, median, mode, range, standard deviation, interquartile range, quartiles, and percentiles; interpretation of data in tables and graphs, such as line graphs, bar graphs, circle graphs, boxplots, scatterplots and frequency distributions; elementary probability, such as probabilities of compound events and independent events; random variables and probability distributions, including normal distributions; and counting methods, such as combinations, permutations, and Venn diagrams.

These topics are typically taught in high school algebra courses or introductory statistics courses. Inferential statistics is not tested.

The content in these areas includes high school mathematics and statistics at a level that is generally no higher than a second course in algebra; it does not include trigonometry, calculus, or other higher-level mathematics. The publication **Math Review**, provides detailed information about the content of the Quantitative Reasoning measure.

The mathematical symbols, terminology, and conventions used in the Quantitative Reasoning measure are those that are standard at the high school level. For example, the positive direction of a number line is to the right, distances are nonnegative, and prime numbers are greater than 1. Whenever nonstandard notation is used in a question, it is explicitly introduced in the question.

In addition to conventions, there are some assumptions about numbers and geometric figures that are used in the Quantitative Reasoning measure. Two of these assumptions are (1) all numbers used are real numbers and (2) geometric figures are not necessarily drawn to scale. More about conventions and assumptions appear in the publication **Mathematical Conventions**.

[Learn more](#) about the Quantitative Reasoning measure.

Scoring and Score Reporting

Analytical Writing Measure

The primary emphasis in scoring the Analytical Writing measure is on your critical thinking and analytical writing skills. [Learn more](#) about scoring and view Scoring Guide and Score Level Descriptions.

Verbal Reasoning and Quantitative Reasoning Measures

Scoring of the Verbal Reasoning and Quantitative Reasoning measures is essentially a two-step process. First a raw score is computed for each measure. The raw score for each measure is the number of questions answered correctly.

The Verbal Reasoning and Quantitative Reasoning raw scores are then converted to scaled scores through a process known as equating. The equating process accounts for minor variations in difficulty among the different test editions. Thus, a

given scaled score for a particular measure reflects the same level of performance regardless of which edition of the test is taken.

Score Reporting

The scores for the GRE General Test include:

- an Analytical Writing score reported on a 0–6 score scale, in half-point increments
- a Verbal Reasoning score reported on a 130–170 score scale, in one-point increments
- a Quantitative Reasoning score reported on a 130–170 score scale, in one-point increments

If no questions are answered for a specific measure (e.g., Verbal Reasoning), then you will receive a No Score (NS) for that measure.

Preparing for the GRE General Test

Before taking the practice General Test, it is important to become familiar with the content of each of the measures. In this publication, you will find information specific to each measure of the test. You can use this information to understand the type of material on which you will be tested and the question types within each measure. Determine which strategies work best for you. Remember—you can do very well on the test without answering every question in each section correctly.

Test-taking Strategies

Analytical Writing Measure

Everyone—even the most practiced and confident of writers—should spend some time preparing for the Analytical Writing measure before arriving at the test center. It is important to understand the skills measured and how the task is scored. It is also useful to review the scoring guides, sample topics, scored sample essay responses and reader commentary for each task.

The task in the Analytical Writing measure relates to a broad range of subjects—from the fine arts and humanities to the social and physical sciences—but the task does not require specific content knowledge. In fact, the task has been tested by actual GRE test takers to ensure that it possesses several

important characteristics, including the following:

- GRE test takers, regardless of their field of study or special interests, understood the task and could easily respond to it.
- The task elicited the kinds of complex thinking and persuasive writing that university faculty consider important for success in graduate school.
- The responses were varied in content and in the way the writers developed their ideas.

To help you prepare for the Analytical Writing measure, the GRE Program has published the entire **pool of tasks** from which your test task will be selected. You might find it helpful to review the tasks.

Before taking the Analytical Writing measure, review the strategies, sample topics, essay responses and reader commentary for the essay task available on the GRE website. It would also be helpful to review the scoring guide for the task. This will give you a deeper understanding of how raters evaluate essays and the elements they are looking for in an essay.

It is important to budget your time. Within the 30-minute time limit for the task, you will need to allow sufficient time to consider the issue and the specific instructions, plan a response and compose your essay. You want your response to be the best possible example of your writing that you can produce under the testing conditions.

Save a few minutes at the end of the section to check for obvious errors. Although an occasional spelling or grammatical error will not affect your score, severe and persistent errors will detract from the overall effectiveness of your writing and lower your score accordingly.

Verbal Reasoning and Quantitative Reasoning Measures

The questions in the Verbal Reasoning and Quantitative Reasoning measures have a variety of formats. Some require you to select a single answer choice; others require you to select one or more answer choices, and yet others require you to enter a numeric answer. Make sure when answering a question that you understand what response is required. Complete instructions for answering each question type are included in the practice test after the Analytical Writing task.

When taking a Verbal Reasoning or Quantitative Reasoning section, you are free, within that section, to skip questions that you might have difficulty answering and come back to them later during the time provided to work on that section. Also during that time you may change the answer to any question in that section by erasing it completely and filling in an alternative answer. Be careful not to leave any stray marks in the answer area, as they may be interpreted as incorrect responses. You can, however, safely make notes or perform calculations on other parts of the page. No additional scratch paper will be provided.

Your Verbal Reasoning and Quantitative Reasoning scores will be determined by the number of questions for which you select or provide the best answer. Questions for which you mark no answer or more or fewer than the requested number of answers are not counted in scoring. Nothing is subtracted from a score if you answer a question incorrectly. Therefore, to maximize your scores on the Verbal Reasoning and Quantitative Reasoning measures of the paper-based test, it is best to answer every question.

Work as rapidly as you can without being careless. Since no question carries greater weight than any other, do not waste time pondering individual questions you find extremely difficult or unfamiliar.

You may want to go through a section rapidly at first, stopping only to answer those questions where you can do so with certainty. Then go back and answer the questions that require greater thought, concluding with the difficult questions if you have time.

Note: During the actual administration of the General Test, you may work only on the section the test center supervisor designates and only for the time allowed. You may *not* go back to an earlier section of the test after the supervisor announces, “Please stop work” for that section. The supervisor is authorized to dismiss you from the center for doing so. All answers must be recorded in the test book.

Using the Calculator in the Quantitative Reasoning Measure

Sometimes the computations you need to do in order to answer a question in the Quantitative Reasoning measure are somewhat time-consuming, like long division, or involve square roots. For such computations, you can use the handheld calculator

provided to you at the test site. The handheld calculator is a basic four-function calculator with a square root function and with buttons for memory.

Although the calculator can shorten the time it takes to perform computations, keep in mind that the calculator provides results that supplement, but do not replace, your knowledge of mathematics. You must use your mathematical knowledge to determine whether the calculator’s results are reasonable and how the results can be used to answer a question.

Here are some general guidelines for calculator use in the Quantitative Reasoning measure:

- Most of the questions don’t require difficult computations, so don’t use the calculator just because it’s available.
- Use it for calculations that you know are tedious, such as long division, square roots, and addition, subtraction, or multiplication of numbers that have several digits.
- Avoid using it for simple computations that are quicker to do mentally, such as $10 - 490$, $(4)(70)$, $\frac{4,300}{10}$, $\sqrt{25}$, and 30^2 .
- Avoid using it to introduce decimals if you are asked to give an answer as a fraction.
- Some questions can be answered more quickly by reasoning and estimating than by using the calculator.
- If you use the calculator, estimate the answer beforehand so you can determine whether the calculator’s answer is “in the ballpark.” This may help you avoid key-entry errors.

The following guidelines are specific to the handheld calculator in the paper-based test:

- Some computations are not defined for real numbers; for example, division by zero or taking the square root of a negative number. The calculator will indicate that these are errors.
- The calculator displays up to eight digits. If a computation results in a number greater than 99,999,999, then the calculator will indicate that this is an error. For example, the calculation $10,000,000 \times 10 =$ results in an error. If a computation results in a positive number less than 0.0000001, or 10^{-7} , then 0 will be displayed.
- When a computation involves more than one operation, the calculator performs the operations

one by one in the order in which they are entered. For example, when the computation $1 + 2 \times 4$ is entered into the calculator, the result is 12. To get this result, the calculator adds 1 and 2, displays a result of 3, and then multiplies 3 and 4 and displays a result of 12.

Below is an example of a computation using the handheld calculator.

Example Compute $4 + \frac{6.73}{2}$.

Explanation

Perform the division first; that is, enter 6.73 \div 2 $=$ to get 3.365, and then enter $+ 4 =$ to get 7.365.

Taking the Practice Test

After you have become familiar with the three measures of the General Test, it is time to take the practice test in this publication to see how well you do. Not only will this help you become familiar with the directions and types of questions, it will help you determine how to pace yourself during an actual test. The practice test begins on page 9. The total time that should be allotted for this practice test is 2 hours and 15 minutes. The time that should be allotted for each section appears at the beginning of the section.

Evaluating Your Performance

Analytical Writing Measure

One way to evaluate your performance on the topic you answered on the practice test is to compare your essay response to the scored sample essay responses for this topic and review the rater commentary. Scored sample essay responses and rater commentary for the topic are presented in Appendix A on pages 56–60.

We also recommend that you review the **score level descriptions** on the GRE website to better understand the analytical writing abilities characteristic of particular score levels.

Verbal Reasoning and Quantitative Reasoning Measures

Appendix B on pages 61–62 contains the correct answers to the questions in the Verbal Reasoning and Quantitative Reasoning sections. Compare your answers to the correct answers given in the table, and count up the number of questions you answered correctly. Partially correct answers should be treated as incorrect.

You can evaluate your performance by comparing your performance on each test question to the performance of a group of actual GRE test takers who were administered those questions at previous test administrations. In the table on page 61, there is a number to the right of each correct answer. That number, referred to as percent correct or P+, is the percent of a group of actual test takers who were administered that same question at a previous test administration who answered it correctly. P+ is used to gauge the relative difficulty of a test question. The higher the P+, the easier the test question. You can use the P+ to compare your performance on each test question to the performance of other test takers on that same question. It can also help identify content areas in which you need more practice and review.

For example, if the P+ for a question is 89, that means that 89 percent of GRE test takers who received this question answered it correctly. If the P+ for a question is 14, that means that 14 percent of GRE test takers who received this question answered it correctly. A question with a P+ of 89 may be interpreted as a relatively easy question, and a question with a P+ of 14 may be interpreted as a relatively difficult question.

Next, add the number of correct answers in Sections 2 and 3 to obtain your raw Verbal Reasoning score. Add the number of correct answers in Sections 4 and 5 to obtain your raw Quantitative Reasoning score. Once you have calculated your raw scores, refer to the score conversion table on page 62 to find the scaled scores corresponding to your raw scores on both the Verbal Reasoning and Quantitative Reasoning measures. These scores should give you a general idea of how you might perform on the GRE General Test but they are not precise predictions of

your future test performance. The scores provided can help guide your test preparation.

The percentile rank tables on the **GRE website** allow you to compare your scaled scores with the scores of others who have taken the General Test. The tables provide for each scaled score the percent of test takers who earned lower scores (percentile rank). To evaluate the level of your performance on the practice test, find the percentile ranks associated with your scores.

Practice GRE General Test

You will have 2 hours and 15 minutes to work on this test, which consists of one writing task and four multiple-choice sections. During the time allowed for one section, you may work **only** on that section. The time allowed for each section is printed at the top of the first page of the section.

SECTION 1
Analytical Writing
Time—30 minutes

You have 30 minutes to plan and compose a response to the issue below. A response to any other issue will receive a score of zero. Make sure that you respond according to the specific instructions and support your position on the issue with reasons and examples drawn from such areas as your reading, experience, observations, and/or academic studies.

The best way for a society to prepare its young people for leadership in government, industry, or other fields is by instilling in them a sense of cooperation, not competition.

Write a response in which you discuss the extent to which you agree or disagree with the claim. In developing and supporting your position, be sure to address the most compelling reasons and/or examples that could be used to challenge your position.

Trained GRE readers will evaluate your response for its overall quality based on how well you:

- Respond to the specific task instructions
- Consider the complexities of the issue
- Organize, develop, and express your ideas
- Support your ideas with relevant reasons and/or examples
- Control the elements of standard written English

Before you begin writing, you may want to think for a few minutes about the issue and the specific task instructions and then plan your response. **Use the next page to plan your response, then write your response starting on the first lined page that follows. A total of four lined pages are provided for your response.** Be sure to develop your position fully and organize it coherently, but leave time to reread what you have written and make any revisions you think are necessary.

Write your response within the boxed area on the pages provided. **Any text outside the boxed area will not be scored.**

1 1 1 1 1 1 1 1 1 1

**Plan your response below. When you are ready to begin writing
your essay, turn to the next page.**

1 1 1 1 1 1 1 1 1 1

ANALYZE AN ISSUE RESPONSE (Page 1 of 4)

1 1 1 1 1 1 1 1 1 1 1

ANALYZE AN ISSUE RESPONSE (Page 2 of 4)

1 1 1 1 1 1 1 1 1 1

ANALYZE AN ISSUE RESPONSE (Page 3 of 4)

1 1 1 1 1 1 1 1 1 1

ANALYZE AN ISSUE RESPONSE (Page 4 of 4)

S T O P

If you finish before time is called, you may check your work on this section only.

Instructions for Verbal Reasoning and Quantitative Reasoning Sections

Important Notes

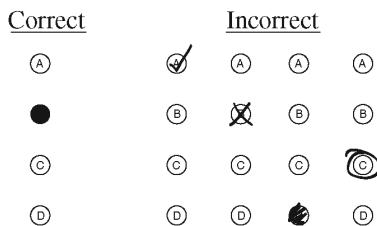
Your scores for these sections will be determined by the number of questions you answer correctly. Nothing is subtracted from a score if you answer a question incorrectly. Therefore, to maximize your scores it is better for you to guess at an answer than not to respond at all. Work as rapidly as you can without losing accuracy. Do not spend too much time on questions that are too difficult for you. Go on to the other questions and come back to the difficult ones later.

Some or all of the passages in this test have been adapted from published material to provide the test taker with significant problems for analysis and evaluation. To make the passages suitable for testing purposes, the style, content, or point of view of the original may have been altered. The ideas contained in the passages do not necessarily represent the opinions of ETS.

You may use a calculator in the Quantitative Reasoning sections only. You will be provided with a calculator and cannot use any other calculator.

Marking Your Answers

All answers must be marked in this test book. When filling in the circles that accompany each question, BE SURE THAT EACH MARK IS DARK AND COMPLETELY FILLS THE CIRCLE.



Be careful to erase any stray marks that lie in or near a circle. If you change an answer, be sure that all previous marks are erased completely. Stray marks and incomplete erasures may be read as intended answers. Scratch paper will not be provided. You may work out your answers in the blank areas of the test book, but do not work out answers near the circles.

Question Formats

The questions in these sections have several different formats. A brief description of these formats and instructions for entering your answer choices are given below.

Multiple-choice Questions—Select One Answer Choice

These standard multiple-choice questions require you to select just one answer choice from a list of options. You will receive credit only if you mark the **single** correct answer choice and no other.

Example: What city is the capital of France?

- Ⓐ Rome
- Paris
- Ⓒ London
- Ⓓ Cairo

Multiple-choice Questions—Select One or More Answer Choices

Some of these questions specify how many answer choices to select; others require you to select all that apply. In either case, to receive credit you must mark all of the correct answer choices and no others. These questions are distinguished by the use of a square box.

Example: Select all that apply.

Which of the following countries are in Africa?

- Chad
- China
- France
- Kenya

Column Format Questions

This question type presents the answer choices in columns. You must select one answer choice from each column. You will receive credit only if you mark the correct answer choice **in each column**.

Example: Complete the following sentence.

(i) _____ is the capital of (ii) _____.

Blank (i)	Blank (ii)
<ul style="list-style-type: none"><input checked="" type="radio"/> Paris<input type="radio"/> Rome<input type="radio"/> Cairo	<ul style="list-style-type: none"><input type="radio"/> Canada<input checked="" type="radio"/> France<input type="radio"/> China

Numeric Entry Questions

To answer these questions, enter a number by filling in circles in a grid. Complete instructions for doing so will be found in the Quantitative Reasoning sections.

SECTION 2

Verbal Reasoning

Time—21 minutes

15 Questions

For each question, indicate the best answer, using the directions given.

For each of Questions 1 to 5, select one entry for each blank from the corresponding column of choices. Fill all blanks in the way that best completes the text.

1. This filmmaker is not outspoken on political matters: her films are known for their aesthetic qualities rather than for their _____ ones.
2. James Boswell's *Life of Samuel Johnson* is generally thought to have established Boswell as the first great modern biographer; yet the claim of _____ could be made for Johnson himself as author of a life of Richard Savage.

- (A) polemical
- (B) cinematic
- (C) narrative
- (D) commercial
- (E) dramatic

- (A) partisanship
- (B) omniscience
- (C) precedence
- (D) opportunism
- (E) perseverance

2 2 2 2 2 2 2 2 2 2

3. Critics charge that the regulatory agency, having never defined what constitutes an untenable risk, has grown (i) _____ outside influences on that issue: several experts have (ii) _____ it recently for allowing one power plant to delay an inspection for more than six weeks despite compelling safety concerns.

Blank (i)

- (A) susceptible to
- (B) unaware of
- (C) irritated at

Blank (ii)

- (D) complimented
- (E) panned
- (F) overlooked

4. Because we assume the (i) _____ of natural design, nature can often (ii) _____ us: as the Wright brothers noted, the birds initially misled them in almost every particular, but their Flyer eventually succeeded by being the least avian of the early flying machines.

Blank (i)

- (A) quirkiness
- (B) preeminence
- (C) maladroitness

Blank (ii)

- (D) galvanize
- (E) befriend
- (F) beguile

2 2 2 2 2 2 2 2 2 2

5. Historical research makes two somewhat antithetical truths that sounded (i) _____ come to seem profound: knowledge of the past comes entirely from written documents, giving written words great (ii) _____, and the more material you uncover, the more (iii) _____ your subject becomes.

Blank (i)

- (A) deep
- (B) portentous
- (C) banal

Blank (ii)

- (D) consequence
- (E) antiquity
- (F) simultaneity

Blank (iii)

- (G) elusive
- (H) contemporary
- (I) circumstantial

2 2 2 2 2 2 2 2 2 2

For Question 6, select one answer choice unless otherwise directed.

Question 6 is based on this passage.

Extensive housing construction is underway in Pataska Forest, the habitat of a large population of deer. Because deer feed at the edges of forests, these deer will be attracted to the spaces alongside the new roads being cut through Pataska Forest to serve the new residential areas. Consequently, once the housing is occupied, the annual number of the forest's deer hit by cars will be much higher than before construction started.

- Line 5
6. Which of the following is an assumption on which the argument depends?
- (A) The number of deer hit by commercial vehicles will not increase significantly when the housing is occupied.
 - (B) Deer will be as attracted to the forest edge around new houses as to the forest edge alongside roads.
 - (C) In years past, the annual number of deer that have been hit by cars on existing roads through Pataska Forest has been very low.
 - (D) The development will leave sufficient forest to sustain a significant population of deer.
 - (E) No deer hunting will be allowed in Pataska Forest when the housing is occupied.

For each of Questions 7 to 9, select the two answer choices that, when used to complete the sentence, fit the meaning of the sentence as a whole and produce completed sentences that are alike in meaning.

7. Female video artists' rise to prominence over the past 30 years has _____ the ascent of video as an art form: it is only within the past three decades that video art has attained its current, respected status.

- (A) matched
- (B) politicized
- (C) paralleled
- (D) obviated
- (E) accelerated
- (F) forestalled

8. The spy's repeated bungling was, above all else, _____ those who wished to thwart her efforts, since it was so unpredictable as to obscure any pattern that might otherwise lead to her capture.

- (A) an obstacle to
- (B) a signal to
- (C) a hindrance to
- (D) an indication for
- (E) a snare for
- (F) a boon to

9. Each member of the journalistic pair served as _____ the other: each refrained from publishing a given piece if the other doubted that it was ready to be printed.

- (A) a check on
- (B) an advocate for
- (C) an impediment to
- (D) a brake on
- (E) an apologist for
- (F) an intermediary for

For each of Questions 10 to 15, select one answer choice unless otherwise directed.

Questions 10 and 11 are based on this passage.

While chocolate was highly esteemed in Mesoamerica, where it originated, its adoption in Europe was initially slow. There is a common belief that Europeans needed to “transform” chocolate to make it appetizing. However, while Spaniards did put sugar, which was unknown to indigenous Americans, into chocolate beverages, this additive was not completely innovative. Mesoamericans were already sweetening chocolate with honey, and the step from honey to sugar—increasingly more available than honey because of expanding sugar plantations in the Americas—is a small one. Likewise, although Spaniards adjusted Mesoamerican recipes by using European spices, the spices chosen suggest an attempt to replicate harder-to-find native flowers. There is no indication the Spaniards deliberately tried to change the original flavor of chocolate.

10. The author of the passage refers to the use of honey primarily to

- (A) identify the origins of an additive previously untried by Europeans
- (B) present an example of a product that was unknown to Europeans
- (C) correct the misapprehension that Mesoamericans used a sweetener that was not available in Europe
- (D) provide an example of an ingredient that was in the process of being displaced by a substitute
- (E) explain why the Spanish use of sugar in chocolate was not a sign of a need to transform chocolate

11. Which sentence presents a misconception that the passage challenges?

- (A) The second (“There is . . . appetizing”)
- (B) The third (“However . . . innovative”)
- (C) The fourth (“Mesoamericans . . . one”)
- (D) The fifth (“Likewise . . . flowers”)
- (E) The sixth (“There is . . . chocolate”)

2 2 2 2 2 2 2 2 2 2

Questions 12 and 13 are based on this passage.

Line Biologists generally agree that birds and dinosaurs are somehow related to one another. The agreement ends there. Hypotheses regarding dinosaurian and avian evolution are unusually diverse—and often at 5 odds with one another. Confusion consequently reigns over a broad spectrum of unanswered questions dealing with avian origins and the biology of dinosaurs and early birds. This confusion has been exacerbated by a paucity of serious attempts to 10 synthesize and evaluate available data on the details of avian and dinosaurian evolution. Too often, the job of summarizing current knowledge of these subjects has fallen to well-meaning but naïve lay authors or reporters. Consequently, both the public and the 15 scientific community have often been misled by widespread dissemination of sensational but weakly founded hypotheses.

For the following question, consider each of the choices separately and select all that apply.

12. The passage suggests that which of the following could help remedy the problem described in the final sentence (lines 14-17)?

- A An article written by a biologist for the general public summarizing current theories about avian and dinosaurian evolution
- B A close examination of available data on avian and dinosaurian evolution
- C A new hypothesis regarding the connection between avian and dinosaurian evolution

13. In the context in which it appears, “sensational” (line 16) most nearly means

- A dramatic
- B false
- C excellent
- D eminent
- E horrifying

Questions 14 and 15 are based on this passage.

A portrait type that appeared with relentless frequency in eighteenth-century England is the familiar image of a gentleman poised with one hand inside his partially unbuttoned waistcoat. Standard interpretations of this portrait posture offer observations of correspondence—demonstrating either that it mirrors actual social behavior or that it borrows from classical statuary. Such explanations, however, illuminate neither the source of this curious convention nor the reason for its popularity. It is true that in real life the “hand-in” was a common stance for elite men. Still, there were other ways of comporting the body that did not become winning portrait formulas. And even if the “hand-in” portrait does resemble certain classical statues, what accounts for the adoption of this particular pose?

14. In the context of the passage as a whole, the primary function of the sentence in lines 10-12 (“It is . . . men”) is to

- (A) emphasize the influence of a particular social class on the conventions of eighteenth-century English portraiture
- (B) account for the origin of a particular type of behavior frequently represented in eighteenth-century English portraiture
- (C) acknowledge a historical basis for two competing hypotheses about a particular portrait type
- (D) question the relevance of certain evidence frequently cited in support of an explanation for a particular portrait type
- (E) concede that one explanation for the prevalence of a particular portrait type has a basis in fact

For the following question, consider each of the choices separately and select all that apply.

15. Which of the following might provide an explanation for the popularity of hand-in portraits that would satisfy the author of the passage?
- (A) An eighteenth-century English etiquette manual discussing the social implications of the “hand-in” stance
 - (B) A comprehensive catalogue of eighteenth-century English portraits that showed what proportion of portraits depicted gentlemen in the “hand-in” stance
 - (C) A passage from an eighteenth-century English novel in which a gentleman considers what stance to adopt when his portrait is painted

2 2 2 2 2 2 2 2 2 2 2

S T O P

If you finish before time is called, you may check your work on this section only.

3 3 • 3 • 3 • 3 • 3 3

**SECTION 3
Verbal Reasoning
Time—28 minutes
20 Questions**

For each question, indicate the best answer, using the directions given.

For each of Questions 1 to 6, select one entry for each blank from the corresponding column of choices. Fill all blanks in the way that best completes the text.

1. Many find it strange that her writing is thought to be tortuous; her recent essays, although longer than most of her earlier essays, are extremely _____.

- (A) painstaking
- (B) tedious
- (C) insightful
- (D) sophisticated
- (E) clear

2. Most spacecraft are still at little risk of collision with space debris during their operational lifetimes, but given the numbers of new satellites launched each year, the orbital environment in the future is likely to be less _____.

- (A) crowded
- (B) invulnerable
- (C) protected
- (D) polluted
- (E) benign

3 3 • 3 • 3 • 3 • 3 3

3. The unironic representation of objects from everyday life is (i) _____ serious American art of the twentieth century: “high” artists ceded the straightforward depiction of the (ii) _____ to illustrators, advertisers, and packaging designers.

Blank (i)

Blank (ii)

- (A) missing from
- (B) valued in
- (C) crucial to

- (D) beautiful
- (E) commonplace
- (F) complex

4. A newly published, laudatory biography of George Bernard Shaw fails, like others before it, to capture the essence of his personality: the more he is (i) _____, the more his true self seems to (ii) _____.

Blank (i)

Blank (ii)

- (A) discussed
- (B) disparaged
- (C) disregarded

- (D) disappear
- (E) emerge
- (F) coalesce

5. There is nothing that (i) _____ scientists more than having an old problem in their field solved by someone from outside. If you doubt this (ii) _____, just think about the (iii) _____ reaction of paleontologists to the hypothesis of Luis Alvarez—a physicist—and Walter Alvarez—a geologist—that the extinction of the dinosaurs was caused by the impact of a large meteor on the surface of the planet.

Blank (i)

Blank (ii)

Blank (iii)

- (A) amazes
- (B) pleases
- (C) nettles

- (D) exposition
- (E) objurgation
- (F) observation

- (G) contemptuous
- (H) indifferent
- (I) insincere

3 3 • 3 • 3 • 3 • 3 3

6. If one could don magic spectacles—with lenses that make the murky depths of the ocean become transparent—and look back several centuries to an age before widespread abuse of the oceans began, even the most (i) _____ observer would quickly discover that fish were formerly much more abundant. Likewise, many now-depleted species of marine mammals would appear (ii) _____. But without such special glasses, the differences between past and present oceans are indeed hard to (iii) _____.

Blank (i)

- (A) casual
- (B) prescient
- (C) clearheaded

Blank (ii)

- (D) threatened
- (E) plentiful
- (F) unfamiliar

Blank (iii)

- (G) ignore
- (H) discern
- (I) dismiss

For each of Questions 7 to 10, select one answer choice unless otherwise directed.

Questions 7 to 9 are based on this passage.

Historian F. W. Maitland observed that legal documents are the best—indeed, often the only—available evidence about the economic and social history of a given period. Why, then, has it taken so long for historians to focus systematically on the civil (noncriminal) law of early modern (sixteenth- to eighteenth-century) England? Maitland offered one reason: the subject requires researchers to “master an extremely formal system of pleading and procedure.” Yet the complexities that confront those who would study such materials are not wholly different from those recently surmounted by historians of criminal law in England during the same period. Another possible explanation for historians’ neglect of the subject is their widespread assumption that most people in early modern England had little contact with civil law. If that were so, the history of legal matters would be of little relevance to general historical scholarship. But recent research suggests that civil litigation during the period involved artisans, merchants, professionals, shopkeepers, and farmers, and not merely a narrow, propertied, male elite. Moreover, the later sixteenth and early seventeenth centuries saw an extraordinary explosion in civil litigation by both women and men, making this the most litigious era in English history on a per capita basis.

7. The passage suggests that the history of criminal law in early modern England differs from the history of civil law during that same period in that the history of criminal law

- (A) is of more intellectual interest to historians and their readers
- (B) has been studied more thoroughly by historians
- (C) is more relevant to general social history
- (D) involves the study of a larger proportion of the population
- (E) does not require the mastery of an extremely formal system of procedures

8. The author of the passage mentions the occupations of those involved in civil litigation in early modern England most likely in order to

- (A) suggest that most historians’ assumptions about the participants in the civil legal system during that period are probably correct
- (B) support the theory that more people participated in the civil legal system than the criminal legal system in England during that period
- (C) counter the claim that legal issues reveal more about a country’s ordinary citizens than about its elite
- (D) illustrate the wide range of people who used the civil legal system in England during that period
- (E) suggest that recent data on people who participated in early modern England’s legal system may not be correct

9. The author of the passage suggests which of the following about the “widespread assumption” (line 15)?

- (A) Because it is true, the history of civil law is of as much interest to historians focusing on general social history as to those specializing in legal history.
- (B) Because it is inaccurate, the history of civil law in early modern England should enrich the general historical scholarship of that period.
- (C) It is based on inaccurate data about the propertied male elite of early modern England.
- (D) It does not provide a plausible explanation for historians’ failure to study the civil law of early modern England.
- (E) It is based on an analogy with criminal law in early modern England.

Question 10 is based on this passage.

Newspaper Editorial

Last year, Mayor Stephens established a special law-enforcement task force with the avowed mission of eradicating corruption in city government. The Line mayor's handpicked task force has now begun 5 prosecuting a dozen city officials. Since all of these officials were appointed by Mayor Bixby, Mayor Stephens' predecessor and longtime political foe, it is clear that those being prosecuted have been targeted because of their political affiliations.

10. Which of the following, if true, most weakens the editorial's argument?

- (A) Complaints of official corruption in city government have decreased since the anticorruption task force began operating.
- (B) Former mayor Bixby did not publicly oppose Mayor Stephens' establishment of the anticorruption task force.
- (C) Almost all of the officials who have served in city government for any length of time are appointees of Mayor Bixby.
- (D) All of the members of the anticorruption task force had other jobs in city government before the task force was formed.
- (E) During the last mayoral election campaign, then-Mayor Bixby hotly disputed the current mayor's claim that there was widespread corruption in city government.

For each of Questions 11 to 14, select the two answer choices that, when used to complete the sentence, fit the meaning of the sentence as a whole and produce completed sentences that are alike in meaning.

11. The slower-learning monkeys searched _____ but unintelligently: although they worked closely together, they checked only the most obvious hiding places.

- (A) competitively
- (B) impulsively
- (C) cooperatively
- (D) deviously
- (E) craftily
- (F) harmoniously

12. By about age eight, children's phonetic capacities are fully developed but still _____; thus children at that age can learn to speak a new language with a native speaker's accent.

- (A) plastic
- (B) vestigial
- (C) inarticulate
- (D) unformed
- (E) nascent
- (F) malleable

3 3 • 3 • 3 • 3 • 3 3

13. Although the film is rightly judged imperfect by most of today's critics, the films being created today are _____ it, since its release in 1940 provoked sufficient critical discussion to enhance the intellectual respectability of cinema considerably.
- (A) beholden to
(B) indebted to
(C) derivative of
(D) based on
(E) distinguishable from
(F) biased against
14. The detective's conviction that there were few inept crimes in her district led her to impute some degree of _____ to every suspect she studied.
- (A) deceit
(B) acumen
(C) duplicity
(D) shrewdness
(E) evasiveness
(F) equivocation

For each of Questions 15 to 20, select one answer choice unless otherwise directed.

Questions 15 to 17 are based on this passage.

The decrease in responsiveness that follows continuous stimulation (adaptation) is common to all sensory systems, including olfaction. With continued exposure to chronically present ambient odors, individuals' perception of odor intensity is greatly reduced. Moreover, these perceptual changes can be profound and durable. It is commonly reported that following extended absences from the odorous environment, reexposure may still fail to elicit perception at the original intensity.

Most research on olfactory adaptation examines relatively transient changes in stimulus detection or perceived intensity—rarely exceeding several hours and often less—but because olfactory adaptation can be produced with relatively short exposures, these durations are sufficient for investigating many parameters of the phenomenon. However, exposures to odors in natural environments often occur over far longer periods, and the resulting adaptations may differ qualitatively from short-term olfactory adaptation. For example, studies show that even brief periods of odorant stimulation produce transient reductions in receptors in the olfactory epithelium, a process termed “receptor fatigue.” Prolonged odor stimulation, however, could produce more long-lasting reductions in response, possibly involving structures higher in the central nervous system pathway.

15. According to the passage, the phenomenon of olfactory adaptation may cause individuals who are reexposed to an odorous environment after an extended absence to
- (A) experience a heightened perception of the odor
 - (B) perceive the odor as being less intense than it was upon first exposure
 - (C) return to their original level of perception of the odor
 - (D) exhibit a decreased tolerance for the odorous environment
 - (E) experience the phenomenon of adaptation in other sensory systems

16. The passage asserts which of the following about the exposures involved in the “research on olfactory adaptation” (line 11)?
- (A) The exposures are of long enough duration for researchers to investigate many aspects of olfactory adaptation.
 - (B) The exposures have rarely consisted of reexposures following extended absences from the odorous environment.
 - (C) The exposures are intended to reproduce the relatively transient olfactory changes typical of exposures to odors in natural environments.
 - (D) Those exposures of relatively short duration are often insufficient to produce the phenomenon of receptor fatigue in study subjects.
 - (E) Those exposures lasting several hours produce reductions in receptors in the olfactory epithelium that are similar to the reductions caused by prolonged odor stimulation.
17. The author of the passage discusses “receptor fatigue” (line 24) primarily in order to
- (A) explain the physiological process through which long-lasting reductions in response are thought to be produced
 - (B) provide an example of a process that subjects would probably not experience during a prolonged period of odorant stimulation
 - (C) help illustrate how the information gathered from most olfactory research may not be sufficient to describe the effects of extended exposures to odors
 - (D) show how studies of short-term olfactory adaptation have only accounted for the reductions in response that follow relatively brief absences from an odorous environment
 - (E) qualify a statement about the severity and duration of the perceptual changes caused by exposure to chronically present ambient odors

Questions 18 and 19 are based on this passage.

Line Among academics involved in the study of Northern Renaissance prints (reproducible graphic artworks), an orthodox position can be said to have emerged. This position regards Renaissance prints as
5 passive representations of their time—documents that reliably record contemporary events, opinions, and beliefs—and therefore as an important means of accessing the popular contemporary consciousness. In contrast, pioneering studies such as those by
10 Scribner and Moxey take a strikingly different approach, according to which Northern Renaissance prints were purposeful, active, and important shaping forces in the communities that produced them. Scribner, for example, contends that religious and
15 political prints of the German Reformation (ca. 1517–1555) functioned as popular propaganda: tools in a vigorous campaign aimed at altering people’s behavior, attitudes, and beliefs.

For the following question, consider each of the choices separately and select all that apply.

18. The passage suggests that an adherent to the “orthodox position” (line 3) would agree with which of the following statements?

- (A) Northern Renaissance prints should be regarded as passive representations of their time.
- (B) Northern Renaissance prints were part of a campaign aimed at altering contemporary thinking.
- (C) Northern Renaissance prints provide reliable records of contemporary events, opinions, and beliefs.

19. Replacement of the word “passive” (line 5) with which of the following words results in the least change in meaning for the passage?

- (A) disinterested
- (B) submissive
- (C) flaccid
- (D) supine
- (E) unreceptive

3 3 • 3 • 3 • 3 • 3 3

Question 20 is based on this passage.

Recently an unusually high number of dolphins have been found dead of infectious diseases, and most of these had abnormally high tissue concentrations of certain compounds that, even in low concentrations, reduce dolphins' resistance to infection. The only source of these compounds in the dolphins' environment is boat paint. Therefore, since dolphins rid their bodies of the compounds rapidly once exposure ceases, their mortality rate should decline rapidly if such boat paints are banned.

Line 5 20. Which of the following, if true, most strengthens the argument?

- (A) The levels of the compounds typically used in boat paints today are lower than they were in boat paints manufactured a decade ago.
- (B) In high concentrations, the compounds are toxic to many types of marine animals.
- (C) The compounds break down into harmless substances after a few months of exposure to water or air.
- (D) High tissue levels of the compounds have recently been found in some marine animals, but there is no record of any of those animals dying in unusually large numbers recently.
- (E) The compounds do not leach out of the boat paint if the paint is applied exactly in accordance with the manufacturer's directions.

S T O P

If you finish before time is called, you may check your work on this section only.



SECTION 4

Quantitative Reasoning

Time—24 minutes

15 Questions

For each question, indicate the best answer, using the directions given.

Notes: All numbers used are real numbers.

All figures are assumed to lie in a plane unless otherwise indicated.

Geometric figures, such as lines, circles, triangles, and quadrilaterals, **are not necessarily** drawn to scale. That is, you should **not** assume that quantities such as lengths and angle measures are as they appear in a figure. You should assume, however, that lines shown as straight are actually straight, points on a line are in the order shown, and more generally, all geometric objects are in the relative positions shown. For questions with geometric figures, you should base your answers on geometric reasoning, not on estimating or comparing quantities by sight or by measurement.

Coordinate systems, such as xy -planes and number lines, **are** drawn to scale; therefore, you can read, estimate, or compare quantities in such figures by sight or by measurement.

Graphical data presentations, such as bar graphs, circle graphs, and line graphs, **are** drawn to scale; therefore, you can read, estimate, or compare data values by sight or by measurement.

For each of Questions 1 to 5, compare Quantity A and Quantity B, using additional information centered above the two quantities if such information is given. Select one of the following four answer choices and fill in the corresponding circle to the right of the question.

- (A) Quantity A is greater.
- (B) Quantity B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

A symbol that appears more than once in a question has the same meaning throughout the question.

Quantity A

Example 1:

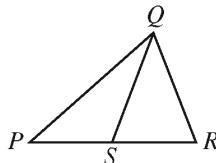
(2)(6)

Quantity B

$2 + 6$

Correct Answer

A B C D



Quantity A

Example 2:

PS

Quantity B

SR

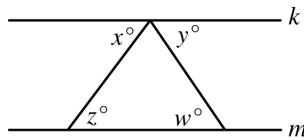
Correct Answer

A B C D

(since equal lengths cannot be assumed, even though PS and SR appear equal)

4 4 4 4 4 4 4 4 4 4 4

- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.
-



Line k is parallel to line m .

Quantity A

1. $x + y$

Quantity B

$w + z$

(A) (B) (C) (D)

4 percent of s is equal to 3 percent of t , where $s > 0$ and $t > 0$.

Quantity A

2. s

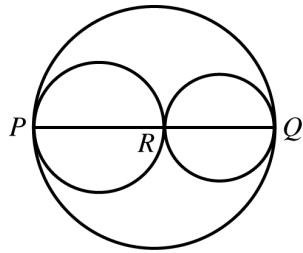
Quantity B

t

(A) (B) (C) (D)

4 4 4 4 4 4 4 4 4 4 4

- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.
-



Three circles with their centers on line segment PQ are tangent at points P , R , and Q , where point R lies on line segment PQ .

Quantity A

3. The circumference of the largest circle

Quantity B

The sum of the circumferences of the
two smaller circles

Ⓐ Ⓑ Ⓒ Ⓓ

$$x > y$$

Quantity A

4.

$$|x + y|$$

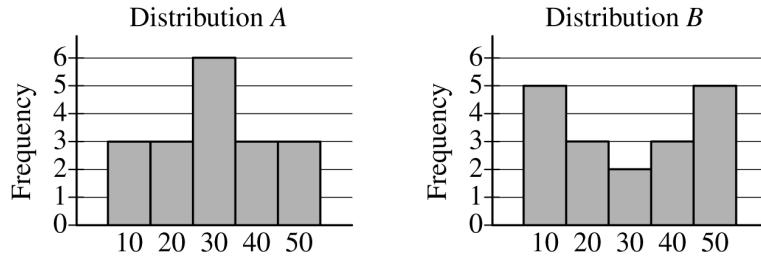
Quantity B

$$|x - y|$$

Ⓐ Ⓑ Ⓒ Ⓓ



- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.
-



The frequency distributions shown above represent two groups of data. Each of the data values is a multiple of 10.

Quantity A

5. The standard deviation of distribution *A*

Quantity B

The standard deviation of distribution *B*

(A) (B) (C) (D)



Questions 6 to 15 have several different formats. Unless otherwise directed, select a single answer choice.
For Numeric Entry questions, follow the instructions below.

Numeric Entry Questions

To answer these questions, enter a number by filling in circles in a grid.

- Your answer may be an integer, a decimal, or a fraction, and it may be negative.
- Equivalent forms of the correct answer, such as 2.5 and 2.50, are all correct. Fractions do **not** need to be reduced to lowest terms, though you may need to reduce your fraction to fit in the grid.
- Enter the exact answer unless the question asks you to round your answer.
- If a question asks for a fraction, the grid will have a built-in division slash (/). Otherwise, the grid will have a decimal point available.
- Start your answer in any column, space permitting. Fill in no more than one circle in any column of the grid. Columns not needed should be left blank.
- Write your answer in the boxes at the top of the grid and fill in the corresponding circles. **You will receive credit only if the circles are filled in correctly, regardless of the number written in the boxes at the top.**

Examples of acceptable ways to use the grid:

Integer answer: 502 (either position is correct)

	5	0	2
-	.	.	.
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

-	5	0	2
.	.	.	.
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Decimal answer: -4.13

-	4	.	1	3
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Fraction answer: $-\frac{2}{10}$

-	2	/	1	0
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9



6. If $\frac{a - b}{a + b} = 2$ and $b = 1$, what is the value of a ?

- (A) 1
- (B) 0
- (C) -1
- (D) -2
- (E) -3

7. A business owner obtained a \$6,000 loan at a simple annual interest rate of r percent in order to purchase a computer. After one year, the owner made a single payment of \$6,840 to repay the loan, including the interest. What is the value of r ?

- (A) 7.0
- (B) 8.4
- (C) 12.3
- (D) 14.0
- (E) 16.8



For the following question, use the grid to enter your answer.

List L : $2, x, y$

List M : $1, 2, 3, x, y$

8. If the average (arithmetic mean) of the 3 numbers

in list L is $\frac{10}{3}$, what is the average of the

5 numbers in list M ?

Give your answer as a fraction.

			/			
(<input type="radio"/> 0)	(<input type="radio"/> 0)	(<input type="radio"/> 0)		(<input type="radio"/> 0)	(<input type="radio"/> 0)	(<input type="radio"/> 0)
(<input type="radio"/> 1)	(<input type="radio"/> 1)	(<input type="radio"/> 1)		(<input type="radio"/> 1)	(<input type="radio"/> 1)	(<input type="radio"/> 1)
(<input type="radio"/> 2)	(<input type="radio"/> 2)	(<input type="radio"/> 2)		(<input type="radio"/> 2)	(<input type="radio"/> 2)	(<input type="radio"/> 2)
(<input type="radio"/> 3)	(<input type="radio"/> 3)	(<input type="radio"/> 3)		(<input type="radio"/> 3)	(<input type="radio"/> 3)	(<input type="radio"/> 3)
(<input type="radio"/> 4)	(<input type="radio"/> 4)	(<input type="radio"/> 4)		(<input type="radio"/> 4)	(<input type="radio"/> 4)	(<input type="radio"/> 4)
(<input type="radio"/> 5)	(<input type="radio"/> 5)	(<input type="radio"/> 5)		(<input type="radio"/> 5)	(<input type="radio"/> 5)	(<input type="radio"/> 5)
(<input type="radio"/> 6)	(<input type="radio"/> 6)	(<input type="radio"/> 6)		(<input type="radio"/> 6)	(<input type="radio"/> 6)	(<input type="radio"/> 6)
(<input type="radio"/> 7)	(<input type="radio"/> 7)	(<input type="radio"/> 7)		(<input type="radio"/> 7)	(<input type="radio"/> 7)	(<input type="radio"/> 7)
(<input type="radio"/> 8)	(<input type="radio"/> 8)	(<input type="radio"/> 8)		(<input type="radio"/> 8)	(<input type="radio"/> 8)	(<input type="radio"/> 8)
(<input type="radio"/> 9)	(<input type="radio"/> 9)	(<input type="radio"/> 9)		(<input type="radio"/> 9)	(<input type="radio"/> 9)	(<input type="radio"/> 9)

10. If $(5^{5x})(25) = 5^n$, where n and x are integers, what is the value of n in terms of x ?

(A) $5x + 1$

(B) $5x + 2$

(C) $5x + 5$

(D) $10x$

(E) $10x + 2$

For the following question, select all the answer choices that apply.

9. Which of the following inequalities have at least one positive solution and at least one negative solution?

Indicate all such inequalities.

(A) $\frac{5}{3}x < x$

(B) $x^3 < x$

(C) $x - 6 < x - 7$



11. Of the 180 judges appointed by a certain President,

30 percent were women and 25 percent were from

minority groups. If $\frac{1}{9}$ of the women appointed

were from minority groups, how many of the

judges appointed were neither women nor from

minority groups?

- (A) 75
(B) 81
(C) 87
(D) 93
(E) 99
12. If an integer is divisible by both 8 and 15, then the integer also must be divisible by which of the following?

- (A) 16
(B) 24
(C) 32
(D) 36
(E) 45

13. A certain experiment has three possible outcomes.

The outcomes are mutually exclusive and have

probabilities p , $\frac{p}{2}$, and $\frac{p}{4}$, respectively. What is

the value of p ?

- (A) $\frac{1}{7}$
(B) $\frac{2}{7}$
(C) $\frac{3}{7}$
(D) $\frac{4}{7}$
(E) $\frac{5}{7}$

For the following question, select all the answer choices that apply.

14. In triangle ABC , the measure of angle B is 90° , the length of side AB is 4, and the length of side BC is x . If the length of hypotenuse AC is between 4 and 8, which of the following could be the value of x ?

Indicate all such values.

- (A) 1
(B) 2
(C) 3
(D) 4
(E) 5
(F) 6



15. Each month, a certain manufacturing company's total expenses are equal to a fixed monthly expense plus a variable expense that is directly proportional to the number of units produced by the company during that month. If the company's total expenses for a month in which it produces 20,000 units are \$570,000, and the total expenses for a month in which it produces 25,000 units are \$705,000, what is the company's fixed monthly expense?

- (A) \$27,000
- (B) \$30,000
- (C) \$67,500
- (D) \$109,800
- (E) \$135,000

S T O P

If you finish before time is called, you may check your work on this section only.

5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5

SECTION 5
Quantitative Reasoning
Time—32 minutes
20 Questions

For each question, indicate the best answer, using the directions given.

Notes: All numbers used are real numbers.

All figures are assumed to lie in a plane unless otherwise indicated.

Geometric figures, such as lines, circles, triangles, and quadrilaterals, **are not necessarily** drawn to scale. That is, you should **not** assume that quantities such as lengths and angle measures are as they appear in a figure. You should assume, however, that lines shown as straight are actually straight, points on a line are in the order shown, and more generally, all geometric objects are in the relative positions shown. For questions with geometric figures, you should base your answers on geometric reasoning, not on estimating or comparing quantities by sight or by measurement.

Coordinate systems, such as xy -planes and number lines, **are** drawn to scale; therefore, you can read, estimate, or compare quantities in such figures by sight or by measurement.

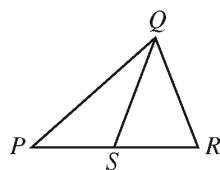
Graphical data presentations, such as bar graphs, circle graphs, and line graphs, **are** drawn to scale; therefore, you can read, estimate, or compare data values by sight or by measurement.

For each of Questions 1 to 7, compare Quantity A and Quantity B, using additional information centered above the two quantities if such information is given. Select one of the following four answer choices and fill in the corresponding circle to the right of the question.

- (A) Quantity A is greater.
- (B) Quantity B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

A symbol that appears more than once in a question has the same meaning throughout the question.

	<u>Quantity A</u>	<u>Quantity B</u>	<u>Correct Answer</u>
Example 1:	(2)(6)	$2 + 6$	<input checked="" type="radio"/> (A) <input type="radio"/> (B) <input type="radio"/> (C) <input type="radio"/> (D)



	<u>Quantity A</u>	<u>Quantity B</u>	<u>Correct Answer</u>
Example 2:	PS	SR	<input checked="" type="radio"/> (A) <input type="radio"/> (B) <input type="radio"/> (C) <input type="radio"/> (D) (since equal lengths cannot be assumed, even though PS and SR appear equal)

5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5

- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.
-

The length of each side of equilateral triangle T is 6 times the length of each side of equilateral triangle X .

Quantity A

1. The ratio of the length of one side of T to the length of another side of T

Quantity B

- The ratio of the length of one side of X to the length of another side of X (A) (B) (C) (D)
-

$$x > 1$$

Quantity A

2.

$$\frac{x}{x+1}$$

Quantity B

$$\frac{-x}{1-x}$$

- (A) (B) (C) (D)

5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5

- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.
-

In the xy -plane, the point $(1, 2)$ is on line j , and the point $(2, 1)$ is on line k . Each of the lines has a positive slope.

- | | | |
|--------------------------|-----------------------|---------|
| <u>Quantity A</u> | <u>Quantity B</u> | |
| 3. The slope of line j | The slope of line k | Ⓐ Ⓑ Ⓒ Ⓓ |
-

n is a positive integer.

- | | | |
|---|---|---------|
| <u>Quantity A</u> | <u>Quantity B</u> | |
| 4. The remainder when n is divided by 5 | The remainder when $n + 10$ is divided by 5 | Ⓐ Ⓑ Ⓒ Ⓓ |

5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5

- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.
-

A right circular cylinder with radius 2 inches has volume 15 cubic inches.

Quantity A

5. The height of the cylinder

Quantity B

2 inches

- (A) (B) (C) (D)
-

$$k \text{ is an integer for which } \frac{1}{2^{1-k}} < \frac{1}{8}.$$

Quantity A

6. k

Quantity B

-2

- (A) (B) (C) (D)
-

n is an integer greater than 0.

Quantity A

7. The number of different prime factors
of $9n$

Quantity B

- The number of different prime factors
of $8n$

- (A) (B) (C) (D)

5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5

Questions 8 to 20 have several different formats. Unless otherwise directed, select a single answer choice. For Numeric Entry questions, follow the instructions below.

Numeric Entry Questions

To answer these questions, enter a number by filling in circles in a grid.

- Your answer may be an integer, a decimal, or a fraction, and it may be negative.
- Equivalent forms of the correct answer, such as 2.5 and 2.50, are all correct. Fractions do **not** need to be reduced to lowest terms, though you may need to reduce your fraction to fit in the grid.
- Enter the exact answer unless the question asks you to round your answer.
- If a question asks for a fraction, the grid will have a built-in division slash (/). Otherwise, the grid will have a decimal point available.
- Start your answer in any column, space permitting. Fill in no more than one circle in any column of the grid. Columns not needed should be left blank.
- Write your answer in the boxes at the top of the grid and fill in the corresponding circles. **You will receive credit only if the circles are filled in correctly, regardless of the number written in the boxes at the top.**

Examples of acceptable ways to use the grid:

Integer answer: 502 (either position is correct)

		5	0	2			
-
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

		5	0	2			
-
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

Decimal answer: -4.13

-	4	.	1	3			
.
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

Fraction answer: $-\frac{2}{10}$

-	2	/	1	0			
.	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦

8. Working at their respective constant rates, machine I makes 240 copies in 8 minutes and machine II makes 240 copies in 5 minutes. At these rates, how many more copies does machine II make in 4 minutes than machine I makes in 6 minutes?

(A) 10
(B) 12
(C) 15
(D) 20
(E) 24

10. In the xy -plane, points R and S have coordinates $(-2, 1)$ and $(4, -7)$, respectively. If point P is the midpoint of line segment RS , what are the coordinates of point P ?

(A) $(-1, -3)$
(B) $(1, -4)$
(C) $(1, -3)$
(D) $(2, -4)$
(E) $(3, -4)$

For the following question, use the grid to enter your answer.

9. Among the people attending a convention in Europe, 32 percent traveled from Asia and 45 percent of those who traveled from Asia are women. What percent of the people at the convention are women who traveled from Asia?

5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5

11. A base of a triangle has length b , the altitude corresponding to the base has length h , and $b = 2h$. Which of the following expresses the area of the triangle, in terms of h ?

(A) $\frac{1}{2}h^2$

(B) $\frac{3}{4}h^2$

(C) h^2

(D) $\frac{3}{2}h^2$

(E) $2h^2$

For the following question, select all the answer choices that apply.

12. Chris entered a number in his calculator and erroneously multiplied the number by 2,073 instead of 2,073, getting an incorrect product. Which of the following is a single operation that Chris could perform on his calculator to correct the error?

Indicate all such operations.

(A) Multiply the incorrect product by 0.001

(B) Divide the incorrect product by 0.001

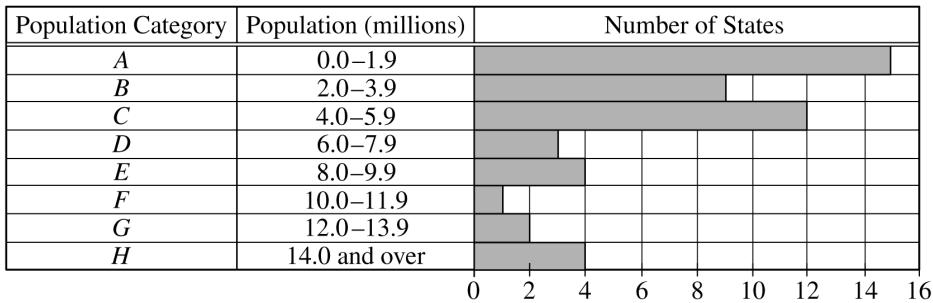
(C) Multiply the incorrect product by 1,000

(D) Divide the incorrect product by 1,000

5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5

Questions 13 to 15 are based on the following data.

DISTRIBUTION OF THE 50 STATES OF THE UNITED STATES BY POPULATION,* 2000



*Population of each state is rounded to the nearest 0.1 million.

13. In 2000 the population of West Virginia was 1.8 million. If the ratio of the population of Georgia to that of West Virginia was 9 to 2, in which population category was Georgia?
- (A) B
 (B) C
 (C) D
 (D) E
 (E) F
14. The number of states in the two population categories C and D was approximately what percent greater than the number in the four population categories from E through H?
- (A) 36%
 (B) 33%
 (C) 30%
 (D) 27%
 (E) 20%
15. The median of the 50 state populations was in which population category?
- (A) A
 (B) B
 (C) C
 (D) D
 (E) E

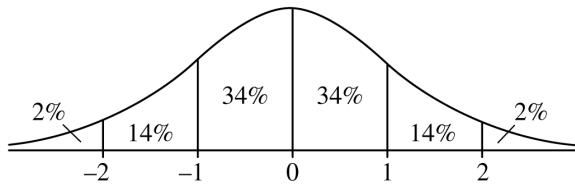
5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5 ♦ 5

For the following question, use the grid to enter your answer.

16. If $\sqrt[3]{x} = 3$ and $x = \sqrt{y}$, what is the value of y ?

$y =$

0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9



17. The figure shows the standard normal distribution, with mean 0 and standard deviation 1, including approximate percents of the distribution corresponding to the six regions shown.

Ian rode the bus to work last year. His travel times to work were approximately normally distributed, with a mean of 35 minutes and a standard deviation of 5 minutes. According to the figure shown, approximately what percent of Ian's travel times to work last year were less than 40 minutes?

- (A) 14%
- (B) 34%
- (C) 60%
- (D) 68%
- (E) 84%



18. For all integers x , the function f is defined as follows.

$$f(x) = \begin{cases} x - 1 & \text{if } x \text{ is even} \\ x + 1 & \text{if } x \text{ is odd} \end{cases}$$

If a and b are integers and $f(a) + f(b) = a + b$, which of the following statements must be true?

- (A) $a = b$
- (B) $a = -b$
- (C) $a + b$ is odd.
- (D) Both a and b are even.
- (E) Both a and b are odd.

19. If $y^{-2} + 2y^{-1} - 15 = 0$, which of the following could be the value of y ?

- (A) 3
- (B) $\frac{1}{5}$
- (C) $-\frac{1}{5}$
- (D) $-\frac{1}{3}$
- (E) -5

For the following question, select all the answer choices that apply.

3.7, 4.1, a , 8.5, 9.2, $2a$

20. The six numbers shown are listed in increasing order. Which of the following values could be the range of the six numbers?

Indicate all such values.

- (A) 4.0
- (B) 5.2
- (C) 7.3
- (D) 11.6
- (E) 12.9
- (F) 14.1

Appendix A

Practice Test Analytical Writing Topic, Scored Sample Essay Responses and Rater Commentary

Topic

<p>“The best way for a society to prepare its young people for leadership in government, industry, or other fields is by instilling in them a sense of cooperation, not competition.”</p> <p>Write a response in which you discuss the extent to which you agree or disagree with the claim. In developing and supporting your position, be sure to address the most compelling reasons or examples that could be used to challenge your position.</p>
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NOTE: All responses are reproduced exactly as written, including errors, misspellings, etc., if any.

Essay Response – Score 6

Whenever people argue that history is a worthless subject or that there is nothing to be gained by just “memorizing a bunch of stupid names and dates,” I simply hold my tongue and smile to myself. What I’m thinking is that, as cliche as it sounds, you do learn a great deal from history (and woe to those who fail to learn those lessons). It is remarkable to think of the number of circumstances and situations in which even the most rudimentary knowledge of history will turn out to be invaluable. Take, for example, the issue at hand here. Is it better for society to instill in future leaders a sense of competition or cooperation? Those who have not examined leaders throughout time and across a number of fields might not have the ability to provide a thorough and convincing answer to this question, in spite of the fact that it is crucial to the future functioning of our society. Looking closely at the question of leadership and how it has worked in the past, I would have to agree that the best way to prepare young people for leadership roles is to instill in them a sense of cooperation.

Let us look first at those leaders who have defined themselves based on their competitiveness. Although at first glance it may appear that a leader must have a competitive edge in order to gain and then maintain a leadership position, I will make two

points on this subject. First, the desire to compete is an inherent part of human nature; that is, it is not something that needs to be “instilled” in young people. Is there anyone who does not compete in some way or another every single day? You try to do better than others in your school work or at the office, or you just try to do better than yourself in some way, to push yourself. When societies instill competitiveness in their leaders, it only leads to trouble. The most blatant example in this case is Adolf Hitler, who took competition to the very extreme, trying to prove that his race and his country were superior to all. We do not, however, need to look that far to find less extreme examples (i.e., Hitler is not the extreme example that disproves the rule). The recent economic meltdown was caused in no large part by the leaders of American banks and financial institutions who were obsessed with competing for the almighty dollar. Tiger Woods, the ultimate competitor in recent golfing history and in many ways a leader who brought the sport of golf to an entirely new level, destroyed his personal life (and perhaps his career — still yet to be determined) by his overreaching sense that he could accomplish anything, whether winning majors or sleeping with as many women as possible. His history of competitiveness is well documented; his father pushed him from a very early age to be the ultimate competitor. It served him well in some respects, but it also proved to be detrimental and ultimately quite destructive.

Leaders who value cooperation, on the other hand, have historically been less prone to these overreaching, destructive tendencies. A good case in point would be Abraham Lincoln. Now, I am sure at this point you are thinking that Lincoln, who served as President during the Civil War and who refused to compromise with the South or allow secession, could not possibly be my model of cooperation! Think, however, of the way Lincoln structured his Cabinet. He did not want a group of “yes men” who would agree with every word he said, but instead he picked people who were more likely to disagree with his ideas. And he respected their input, which allowed him to keep the government together in the North during a very tumultuous period (to say the least). My point in choosing the Lincoln example is that competitiveness and conflict may play better to the masses and be more likely to be recorded in

the history books, but it was his cooperative nature that allowed him to govern effectively. Imagine if the CEO of a large company were never able to compromise and insisted that every single thing be done in exactly her way. Very quickly she would lose the very people that a company needs in order to survive, people with new ideas, people ready to make great advances. Without the ability to work constructively with those who have conflicting ideas, a leader will never be able to strike deals, reach consensus, or keep an enterprise on track. Even if you are the biggest fish in the pond, it is difficult to force your will on others forever; eventually a bigger fish comes along (or the smaller fish team up against you!).

In the end, it seems most critical for society to instill in young people a sense of cooperation. In part this is true because we seem to come by our competitive side more naturally, but cooperation is more often something we struggle to learn (just think of kids on the playground). And although competitive victory is more showy, more often than not the real details of leadership come down to the ability to work with other people, to compromise and cooperate. Getting to be President of the United States or the managing director of a corporation might require you to win some battles, but once you are there you will need diplomacy and people-skills. Those can be difficult to learn, but if you do not have them, you are likely to be a short-lived leader.

Rater Commentary for Essay Response – Score 6

This outstanding response earns a score of 6 for presenting an insightful position on the issue and supporting its analysis with compelling reasons and persuasive examples. The response takes the insightful position that competition, though necessary to some aspects of leadership, is less important for young people to learn because it is inherent in the human condition and can lead to dangerous excesses, whereas cooperation is more difficult to learn but more essential. The response follows the task directions by using counterarguments in the development of its position. For example, the discussion of Lincoln explores conflicting sides of his Presidency (the “competition” of the Civil War and the “cooperation” within his Cabinet). In fact, the response skillfully explores the nuances of both cooperation and competition, building its position of agreement with the prompt by looking closely at many sides of both concepts. Additionally, the

response demonstrates superior facility with language. There are a few minor errors, mainly typos, but in general the response demonstrates excellent sentence variety and diction. This sentence is typical of the quality of the writing throughout the response: “My point in choosing the Lincoln example is that competitiveness and conflict may play better to the masses and be more likely to be recorded in the history books, but it was his cooperative nature that allowed him to govern effectively.” In this complex sentence, the writer makes skillful use of parallel structure and subordination. Because of its fluent writing and insightful development, then, this response earns a score of 6.

Essay Response – Score 5

Cooperation, the act of working as a group to achieve a collective goal, is an important value for young children to learn. Another vital life lesson children can learn is how to be competitive, which is a mindset in which a person feels the need to accomplish more than another person. Both are necessary to become well rounded individuals, but concerning preparing for a future in government, industry or various other fields, a sense of cooperation is much more important.

While not all children are overly competitive in nature, every person has some level of competitive drive inside them. This is a natural thing and is perfectly normal. Unfortunately, if this competitive nature is emphasized, the child will have problems relating socially to other children, and subsequently, will have issues interacting with adults later in life. A fierce competitive drive will blind an individual, causing them to not see situations where group effort will be more greatly rewarded than an individual effort. Take for instance the many teams of people working for NASA. If the people that make up these teams were all out to prove that they were superior to others, our entire space program would be jeopardized. One needs to look beyond the scope of what is best on an individual level and learn to look at what will most benefit a broad group of people. This is where instilling a sense of cooperation in young children is vital. Cooperation is taught at an early age and must be emphasized throughout life to fully embrace the concept.

In the world of sports a competitive drive is vital; unfortunately, life is not a sports game that simply leads to a winning or losing score. Life is far more

complex than this simple idea and there is no winner or loser designation to accompany it. We all have to work together to come to a conclusion that will assist not just ourselves, but others and future generations. In every scenario there will be individuals that have brilliant ideas, but those ideas require other people to build upon, perfect and implement. Take for instance Bill Gates; Bill Gates is responsible for the Microsoft corporation which he invented in his garage. His competitive drive assisted in building his idea, but it was the collaborative effort of many people that helped propel his invention into the world known product it is today. Without the cooperation of others, his genius invention might never have made it out of his garage.

It may be true that an individual can change the world, but only so far as to say that an individual can construct an idea that will inevitably change the world. Once an idea is formulated, it then takes a team of people working collectively towards a common goal to make sure that the brilliant, life-altering idea makes it to fruition. Without the cooperation of many, an idea could simply remain as a picture on a drawing board. It is because of this possibility that instilling a cooperative demeanor in children is much more important than developing a competitive attitude. Competition is a natural thing that will develop with or without encouragement but the same cannot be said for a sense of cooperation.

Rater Commentary for Essay Response – Score 5

Arguing that cooperation is less natural and more important for leadership, this response develops a thoughtful position on the issue and conveys meaning clearly and well. For these reasons it earns a score of 5. Note that it does not develop its reasons and examples as thoroughly as the sample 6 does, but it still presents thoughtful analysis using well-chosen examples. For example, the discussion of Bill Gates is thoughtful, exploring the ways that both competition (the “competitive drive” that led him to found a company) and cooperation (the “collaborative effort of many people”) is what made the company work were essential to his success as a leader. Throughout the response, then, counterarguments are used to create a nuanced position on the issue. The writer looks at conflicting aspects of competition, which is vital but insufficient for life because life is “more complex” than a sporting event, and cooperation, which is critical but more difficult to learn. In

addition, the writer conveys meaning clearly, demonstrating sentence variety and a facility with language that is more than adequate. There are a few minor errors, mainly typos and misspelled words, but language control in this response is more than adequate (e.g., “One needs to look beyond the scope of what is best on an individual level and learn to look at what will most benefit a broad group of people.”). Because of its facility with language and its thoughtful position on the issue, this response earns a score of 5.

Essay Response – Score 4

When the generation of today matures, it is important for them to succeed and become the successful leaders in government, industry and other fields. There are many traits that leaders must possess, and cooperation is one of these very important characters. Nonetheless it is important for leaders to have a sense of competition, so as to prevent themselves from being complacent with their position.

Cooperation is needed in order to be a functional person in society, while still adhering to social standards. Most leaders in society did not start out as such. A person cannot isolate themselves from others with demeanor and attitude and expect to become an executive. While there may be leaders that have developed this ill attitude towards others, they did not get there by being that way. A person who is able to effectively cooperate with others, will subsequently develop a nexus of supporters. Through collaboration, people are able to develop their studies further and better themselves.

However, it is still important for there to be a sense of competition. Competition is the root of motivation for most. It drives us to become stronger, smarter, and to want more. Nonetheless, the spirit of competition must also be reigned in, and not be allowed to run wild. Competitiveness can lead to abuse of power and distasteful actions, which is quite the opposite of someone who displays cooperativeness.

Some may argue that competition is not needed. That those that are meant to be leaders will not become complacent, because they have their own internal drive to lead. If there was no competition, there would be no world records. Michael Phelps may not be a leader of government or industry, but he is certainly educated on the technique of swimming,

and leader in his field. Would he be as good as he is today if there was not competition? Would the leaders of Microsoft have been motivated to create Bing if there was no Google?

Cooperation helped many leaders get where they are today, and will continue to do so in the future. But leaders, as well as those that aspire to be one, all need to have a sense of competition as well.

Rater Commentary for Essay Response – Score 4

This adequate response presents a clear position on the issue in accordance with the assigned task, arguing that both competition and cooperation are important for leaders. The response uses counterarguments both in the construction of its overall position (comparing the value of both competition and cooperation) and in its discussion of the positive and negative aspects of competition. However, the development of ideas in this response is not as thorough or as persuasive as one would expect to see in a response that earns a score of 5 or 6. For instance, the example of Microsoft inventing Bing to compete with Google is certainly relevant, but it is not developed with any thoughtfulness. It is simply stated. Other examples are somewhat more fully developed, but there is also some tangential material (e.g., even the writer seems to understand that Michael Phelps does not quite fit into a discussion of leadership). In addition to its adequate development, this response displays adequate control of language. This response does not have the sentence variety or the skillful diction seen in a response that earns a higher score. There are some minor errors present, but nothing that interferes with clarity. Because this response presents a clear position on the issue, expressing meaning with adequate clarity, it earns a score of 4.

Essay Response – Score 3

Leadership is a tough task to master. To be a leader means you must be better than a bunch of folks and work with them to accomplish a greater goal. Leadership in any field needs cooperative effort and a leader must be able to inspire and make the human resource at hand to work better. In doing so there is a far cry of an immense responsibility. I therefore stand by taking help from inmates to do the same.

Like the say ‘when going gets tough the tough gets going’. So there is no point of getting bogged down rather plan more ways to get the work done and

one of the sureshot approach is by working together. I believe to the core of my heart that there can be nothing equal to cooperation and unity in a work field. As simple as it sounds if one can do a work in hermit atmosphere at certain efficiency, a number of brains working together can be more efficient. An atmosphere where everyone works holding hands and when someone falls there are people to make him stand again makes a much better picture in my mind everytime.

Competition is not a evil it can inspire some one to work better and looking to do better can be considered good. But am afraid what fear here is that when you compete with someone you set you limits to that person. So once you do better than him/her you tend to be relaxed and that is where when the real evil creeps in.

With cooperation you have a goal and associated effort to work for the same. Rather than individual petty and competition to be better placed than an friend it would be far more appreciable to keep working for the common goal. That way even the goal gets more defined at some level. So lets all drop all this boundaries of individualism and keep working for a common goal, and if you want to compete then compete with yourself and get better than what you were yesterday.

Rater Commentary for Essay Response – Score 3

This response displays some competence in presenting a position according to the task directions, but it earns a score of 3 because frequent minor errors do interfere with clarity. The writer agrees with the prompt that cooperation is more important, and it explores some counterarguments in its assertion that competition “can inspire some one to work better and looking to do better can be considered good.” However, almost every sentence in this response has at least one minor error. Some of the errors are typos or minor mechanical problems like missing spaces after punctuation. But other errors have more impact on meaning. Missing words, incorrect sentence boundaries, and improper verb forms contribute to a lack of clarity throughout the response. This sentence is typical of the limited language control seen throughout this response: “So there is no point of getting bogged down rather plan more ways to get the work done and one of the sureshot approach is by working together.” Because of its limited clarity, then, this response earns a score of 3.

Essay Response – Score 2

Both a sense of cooperation and competition is needed to be a good leader. If one is focused on competition and ignores or refuse to work with others then there would be problems for that leader. A leader needs to be able to get along, cooperate and know how to interact with others and allies. Treaties and allies require cooperation. Trade agreements and aid as well. A leader cannot achieve much alone.

Competition is also needed to encourage people to be the best. If no one does there best to obtain a goal how would a leader be chosen. What kind of leader would that make? The best way for a society to prepare its young is to instill a sense of both competition and cooperation.

Rater Commentary for Essay Response – Score 2

This response earns a score of 2 for its seriously limited development. There is a clear position on the issue, as the writer argues that the “best way for a society to prepare its young is to instill a sense of both competition and cooperation.” However, the writer provides few, if any, relevant reasons or examples to support and develop this position. The discussion of cooperation is supported only by very generic assertions like the notion that “treaties and allies require cooperation.” And there is even less development in the discussion of competition. In order to receive a higher score, the response would need to provide more support for its position. Language control in this response is adequate, but the response earns a score of 2 because of its seriously limited development.

Essay Response – Score 1

Best way for a society to prepare its young people for leadership in government, industry, or other fields is by instilling in them a sense of cooperation, not competition. This statement is very true, whether we mean leadership in government, industry, or any other fields.

For leadership in government, industry, or other fields some people argue that the best way for society to prepare its young people is by instilling in them a sense of cooperation. Other people argue that the best way is through competition. It can be difficult for many people to decide between these two choices. There are many arguments that support both sides. I fully agree that the best way is to instilling in them a sense of cooperation, not competition.

Rater Commentary for Essay Response – Score 1

This response earns a score of 1 because it demonstrates little evidence of the ability to develop a position on the issue. Instead of developing a position, the response simply repeats the language of the prompt, adding some generic language that could be applied to any Issue prompt. For example, consider these sentences: “It can be difficult for many people to decide between these two choices. There are many arguments that support both sides.” This is a totally generic analytical framework that has not been filled in with any specific exploration related to this prompt. The writer is clearly making an attempt to respond to the prompt, and the final sentence does seem to indicate a position on the issue. So the response does not merit a score of 0. However, the vast majority of the response is simply repetition of language from the prompt and/or generic material. Thus, it earns a score of 1.

Appendix B

Interpretive Information for the Verbal Reasoning and Quantitative Reasoning Measures of the Practice Test

Answer Key and Percentage of Examinees Answering Each Question Correctly*

Verbal Reasoning			Quantitative Reasoning					
Section 2		Section 3		Section 4		Section 5		
Question Number	Correct Answer	P+	Question Number	Correct Answer	P+	Question Number	Correct Answer	P+
1	A	60	1	E	57	1	C	85
2	C	75	2	E	49	2	B	63
3	A, E	60	3	A, E	43	3	D	60
4	B, F	76	4	A, D	80	4	C	55
5	C, D, G	22	5	C, F, G	59	5	B	47
6	D	26	6	A, E, H	69	6	B	50
7	A, C	67	7	B	58	7	D	24
8	A, C	82	8	D	76	8	B	88
9	A, D	26	9	B	53	9	14,4	71
10	E	65	10	C	36	10	C	67
11	A	67	11	C, F	89	11	C	64
12	A, B	43	12	A, F	50	12	A, D	73
13	A	72	13	A, B	62	13	D	78
14	E	53	14	B, D	33	14	A	36
15	A, C	50	15	B	90	15	C	47
			16	A	60	16	729	41
			17	C	23	17	E	61
			18	A, C	81	18	C	40
			19	A	20	19	C	38
			20	C	19	20	C, D, E	24

* The P+ is the percentage of examinees who answered the question correctly at a previous examination.

Note: There is no partial credit for partially correct answers. You should treat as incorrect any question for which you did not select all the correct answer choices.

Score Conversion Table

Raw Score	Verbal Reasoning Scaled Score	Quantitative Reasoning Scaled Score
35	170	170
34	170	170
33	169	167
32	167	165
31	166	163
30	165	162
29	163	160
28	162	159
27	161	157
26	160	156
25	159	155
24	158	154
23	157	153
22	156	152
21	155	151
20	154	150
19	153	149
18	152	149
17	151	148
16	150	147
15	149	146
14	148	145
13	147	144
12	146	143
11	145	142
10	144	141
9	142	140
8	141	138
7	139	137
6	138	136
5	136	134
4	134	132
3	132	130
2	130	130
1	130	130
0	130	130



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