SAT Practice Test #3

Note: Section 5, the variable section, has been omitted from this practice test.
ESSAY
Time — 25 minutes

Turn to page 2 of your answer sheet to write your ESSAY.

The essay gives you an opportunity to show how effectively you can develop and express ideas. You should, therefore, take care to develop your point of view, present your ideas logically and clearly, and use language precisely.

Your essay must be written on the lines provided on your answer sheet—you will receive no other paper on which to write. You will have enough space if you write on every line, avoid wide margins, and keep your handwriting to a reasonable size. Remember that people who are not familiar with your handwriting will read what you write. Try to write or print so that what you are writing is legible to those readers.

Important Reminders:

• A pencil is required for the essay. An essay written in ink will receive a score of zero.
• Do not write your essay in your test book. You will receive credit only for what you write on your answer sheet.
• An off-topic essay will receive a score of zero.

You have twenty-five minutes to write an essay on the topic assigned below.

Think carefully about the issue presented in the following excerpt and the assignment below.

A mistakenly cynical view of human behavior holds that people are primarily driven by selfish motives: the desire for wealth, for power, or for fame. Yet history gives us many examples of individuals who have sacrificed their own welfare for a cause or a principle that they regarded as more important than their own lives. Conscience—that powerful inner voice that tells us what is right and what is wrong—can be a more compelling force than money, power, or fame.

Assignment: Is conscience a more powerful motivator than money, fame, or power? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

BEGIN WRITING YOUR ESSAY ON PAGE 2 OF THE ANSWER SHEET.

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.
SECTION 2
Time — 25 minutes
20 Questions

Turn to Section 2 (page 4) of your answer sheet to answer the questions in this section.

Directions: For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes
1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible except when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
4. Unless otherwise specified, the domain of any function \( f \) is assumed to be the set of all real numbers \( x \) for which \( f(x) \) is a real number.

Reference Information

\[
\begin{align*}
A &= \pi r^2 \\
C &= 2\pi r \\
A &= \ell w \\
A &= \frac{1}{2}bh \\
V &= \ell wh \\
V &= \pi r^2h \\
c^2 &= a^2 + b^2 \\
\end{align*}
\]

The number of degrees of arc in a circle is 360.
The sum of the measures in degrees of the angles of a triangle is 180.

1. If \( 3x + 9 = 5x + 1 \), what is the value of \( x \)?

   (A) 1  
   (B) 2  
   (C) 3  
   (D) 4  
   (E) 8

2. The first term in the sequence above is 7, and each term after the first is determined by multiplying the preceding term by \( m \) and then adding \( p \). What is the value of \( m \)?

   (A) 1  
   (B) 2  
   (C) 3  
   (D) 4  
   (E) 9

GO ON TO THE NEXT PAGE
T-SHIRTS

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<td>Blue</td>
<td>Large</td>
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<td></td>
<td>Extra-large</td>
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</table>

3. The tables above show the different colors and sizes of T-shirts that are available at Independence High School. How many different combinations of color and size are possible?

(A) 7  
(B) 12  
(C) 15  
(D) 25  
(E) 64

4. For which of the following functions is f(-3) > f(3)?

(A) f(x) = 4x^2  
(B) f(x) = 4  
(C) f(x) = \frac{4}{x}  
(D) f(x) = 4 - x^3  
(E) f(x) = x^4 + 4

5. The force required to stretch a spring beyond its natural length is proportional to how far the spring is being stretched. If a force of 15 pounds stretches a spring 8 centimeters beyond its natural length, what force, in pounds, is needed to stretch this spring 20 centimeters beyond its natural length?

(A) 23  
(B) 27  
(C) 30.5  
(D) 35  
(E) 37.5

6. If Y is the midpoint of Z, which of the following must be true?

I. YZ = \frac{1}{2} XZ

II. \frac{1}{2} XZ = 2XY

III. 2XY = XZ

(A) I only  
(B) II only  
(C) III only  
(D) I and II  
(E) I and III
7. If $2r = 5s$ and $5s = 6t$, what does $r$ equal in terms of $t$?

(A) $\frac{12}{25} t$
(B) $\frac{6}{5} t$
(C) $3t$
(D) $15t$
(E) $30t$

8. A total of $k$ passengers went on a bus trip. Each of the $n$ buses that were used to transport the passengers could seat a maximum of $x$ passengers. If one bus had 3 empty seats and the remaining buses were filled, which of the following expresses the relationship among $n, x,$ and $k$?

(A) $nx - 3 = k$
(B) $nx + 3 = k$
(C) $n + x + 3 = k$
(D) $nk = x + 3$
(E) $nk = x - 3$

9. In the figure above, line $\ell$ is parallel to line $m$. What is the value of $x$?

(A) 150
(B) 140
(C) 130
(D) 110
(E) 100

10. For what value of $x$ is the statement above FALSE?

(A) $-3$
(B) $0$
(C) $\frac{1}{3}$
(D) 1
(E) For no value of $x$
11. Senai customized her bicycle by exchanging the front wheel for a wheel that had one half the diameter of the back wheel. Now when Senai rides the bicycle, how many revolutions does the front wheel make for each revolution of the back wheel?

(A) 8
(B) 4
(C) 2
(D) \( \frac{1}{2} \)
(E) \( \frac{1}{4} \)

12. A list of numbers consists of \( p \) positive and \( n \) negative numbers. If a number is picked at random from this list, the probability that the number is positive is \( \frac{3}{5} \). What is the value of \( \frac{n}{p} \)?

(A) \( \frac{3}{8} \)
(B) \( \frac{5}{8} \)
(C) \( \frac{2}{3} \)
(D) \( \frac{3}{2} \)
(E) \( \frac{8}{3} \)

13. The total daily cost \( c \), in dollars, of producing \( x \) units of a certain product is given by the function \( c(x) = \frac{600x - 200}{x} + k \), where \( k \) is a constant and \( x \leq 100 \). If 20 units were produced yesterday for a total cost of $640, what is the value of \( k \)?

(A) 40
(B) 50
(C) 60
(D) 590
(E) 600

14. For how many ordered pairs of positive integers \((x, y)\) is \( 2x + 3y \leq 6 \)?

(A) One
(B) Two
(C) Three
(D) Five
(E) Seven
17. In the $xy$-plane, line $l$ passes through the origin and is perpendicular to the line $4x + y = k$, where $k$ is a constant. If the two lines intersect at the point $(t, t + 1)$, what is the value of $t$?

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

18. If the average (arithmetic mean) of $x$ and $y$ is $k$, which of the following is the average of $x$, $y$, and $z$?

(A) $\frac{2k + z}{3}$
(B) $\frac{2k + z}{2}$
(C) $\frac{k + z}{3}$
(D) $\frac{k + z}{2}$
(E) $\frac{2(k + z)}{3}$
19. In the figure above, \( \triangle XYZ \) is equilateral, with side of length 2. If \( WY \) is a diameter of the circle with center \( O \), then the area of the circle is

(A) \( \frac{3\pi}{4} \)
(B) \( \frac{2\pi}{3} \)
(C) \( \frac{3\pi}{4} \)
(D) \( \pi \)
(E) \( \frac{3\pi}{2} \)

20. When 15 is divided by the positive integer \( k \), the remainder is 3. For how many different values of \( k \) is this true?

(A) One
(B) Two
(C) Three
(D) Four
(E) Five

STOP
If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.
SECTION 3
Time — 25 minutes
24 Questions

Turn to Section 3 (page 4) of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Hoping to ------- the dispute, negotiators proposed a compromise that they felt would be ------- to both labor and management.

(A) enforce . useful
(B) end . divisive
(C) overcome . unattractive
(D) extend . satisfactory
(E) resolve . acceptable

1. For a long time, most doctors maintained that taking massive doses of vitamins was relatively harmless; now, however, some are warning that excessive dosages can be -------.

(A) healthy (B) expensive (C) wasteful
(D) toxic (E) inane

2. In Jamaica Kincaid’s novel Lucy, the West Indian heroine ------- her employers’ world, critically examining its assumptions and values.

(A) idealizes (B) avoids (C) beautifies
(D) scrutinizes (E) excludes

3. The frequent name changes that the country has undergone ------- the political turbulence that has attended its recent history.

(A) argue against (B) contrast with
(C) testify to (D) jeopardize
(E) sustain

4. Brachiopods, clamlike bivalves of prehistoric times, were one of the most ------- forms of life on the Earth: more than 30,000 species have been ------- from fossil records.

(A) plentiful . subtracted
(B) ornate . retrieved
(C) multifarious . catalogued
(D) scarce . extracted
(E) anachronistic . extrapolated

5. Some interactive computer games are so elaborately contrived and require such ------- strategies that only the most ------- player can master them.

(A) byzantine . adroit
(B) nefarious . conscientious
(C) devious . lackadaisical
(D) onerous . slipshod
(E) predictable . compulsive

GO ON TO THE NEXT PAGE
Each passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in each passage and in any introductory material that may be provided.

Questions 6-7 are based on the following passage.

The critic Edmund Wilson was not a self-conscious letter writer or one who tried to sustain studied mannerisms. Nor did he resort to artifice or entangle himself in circumlocutions. The young, middle-aged, and old Wilson speaks directly through his letters, which are informal for the most part and which undisguisedly reflect his changing moods. On occasion—in response, perhaps, to the misery of a friend or a public outrage or a personal challenge—he can become eloquent, even passionate, but that is not his prevailing tone.

6. Based on the information in the passage, Wilson’s letters can best be described as
   (A) cynical
   (B) spontaneous
   (C) critical
   (D) preachy
   (E) witty

7. The reference to the “young, middle-aged, and old Wilson” (line 4) serves to suggest the
   (A) multifaceted nature of Wilson’s literary persona
   (B) maturity Wilson displayed even as a youth
   (C) effect aging had on Wilson’s temperament
   (D) longevity of Wilson’s literary career
   (E) consistency of Wilson’s letter-writing style

Questions 8-9 are based on the following passage.

The belief that it is harmful to the Black community for authors to explore the humanity of our leaders can have troubling effects. At the least, it promotes the belief that our heroes have to be perfect to be useful. At worst, it censors our full investigation of Black life. If our paintings of that life are stock and cramped, their colors drab and predictable, the representations of our culture are likely to be untrue. They will not capture the breadth and complexity of Black identity.

8. The passage implies that Black leaders have sometimes been portrayed as being
   (A) overly sentimental
   (B) deeply complex
   (C) above reproach
   (D) without regret
   (E) beyond understanding

9. In context, the “paintings” (lines 5-6) are best understood as a reference to
   (A) realistic sculptures
   (B) historical biographies
   (C) whimsical novels
   (D) political cartoons
   (E) colorful theorems
Questions 10-18 are based on the following passage.

The following passage was written by a physicist in 1986.

When astronomers point their telescopes to the nearest galaxy, Andromeda, they see it as it was two million years ago. That's about the time Australopithecus* was basking in the African sun. This little bit of time travel is possible because light takes two million years to make the trip from there to here. Too bad we couldn't turn things around and observe Earth from some cozy planet in Andromeda.

But looking at light from distant objects isn't real time travel, the in-the-flesh participation in past and future found in literature. Ever since I've been old enough to read science fiction, I've dreamed of time traveling. The possibilities are staggering. You could take medicine back to fourteenth-century Europe and stop the spread of plague, or you could travel to the twenty-third century, where people take their annual holidays in space stations.

Being a scientist myself, I know that time travel is quite unlikely according to the laws of physics. For one thing, there would be a causality violation. If you could travel backward in time, you could alter a chain of events with the knowledge of how they would have turned out. Cause would no longer always precede effect. For example, you could prevent your parents from ever meeting. Contemplating the consequences of that will give you a headache, and science fiction writers for decades have delighted in the paradoxes that can arise from traveling through time.

Physicists are, of course, horrified at the thought of causality violation. Differential equations for the way things should behave under a given set of forces and initial conditions would no longer be valid, since what happens in one instant would not necessarily determine what happens in the next. Physicists do rely on a deterministic universe in which to operate, and time travel would almost certainly put them and most other scientists permanently out of work.

Still, I dream of time travel. There is something very personal about time. When the first mechanical clocks were invented, marking off time in crisp, regular intervals, it must have surprised people to discover that time flowed outside their own mental and physiological processes. Body time flows at its own variable rate, oblivious to the most precise clocks in the laboratory. In fact, the human body contains its own exquisite timepieces, all with their separate rhythms. There are the alpha waves in the brain; another clock is the heart. And all the while tick the mysterious, ruthless clocks that regulate aging.

Recently, I found my great-grandfather's favorite pipe. Papa Joe, as he was called, died more than seventy years ago, long before I was born. There are few surviving photographs or other memorabilia of Papa Joe. But I do have his pipe, which had been tucked away in a drawer somewhere for years and was in good condition when I found it. I ran a pipe cleaner through it, filled it with some tobacco I had on hand, and settled down to read and smoke. After a couple of minutes, the most wonderful and foreign blend of smells began wafting from the pipe. All the different occasions when Papa Joe had lit his pipe, all the different places he had been that I will never know—all had been locked up in that pipe and now poured out into the room. I was vaguely aware that something had got delightfully twisted in time for a moment, skipped upward on the page. There is a kind of time travel to be had, if you don't insist on how it happens.

* An extinct humanlike primate

10. The author mentions Australopithecus in line 3 in order to

   (A) note an evolutionary progression in the physical world
   (B) dramatize how different Earth was two million years ago
   (C) commend the superior work of astronomers in isolating a moment early in time
   (D) establish a link between the length of time that Africa has been inhabited and the discovery of the Andromeda galaxy
   (E) emphasize the relatively long period of human life compared to the age of the universe

11. The statement in lines 6-7 ("Too bad . . . Andromeda") suggests that

   (A) scientists would like to observe events that occurred on Earth in the distant past
   (B) there may be planets in Andromeda that are reachable through space travel
   (C) the study of Andromeda would offer interesting comparisons to planet Earth
   (D) a planet in Andromeda will be a likely observation point for Earth in the future
   (E) Andromeda is much older than Earth

12. The author mentions "plague" (line 13) and "space stations" (line 15) primarily to

   (A) give an example of the themes of novels about time travel
   (B) suggest contrasting views of the future
   (C) scoff at the scientific consequences of time travel
   (D) give examples of the subjects that scientists are interested in
   (E) suggest why time travel is such a fascinating topic
13. The author introduces the third paragraph with the words “Being a scientist” in order to
(A) explain an intense personal interest in the topic
(B) lend an air of authority to the discussion of time travel
(C) suggest why certain forms of literature are so appealing
(D) provoke those who defend science fiction
(E) help illustrate the term “causality violation”

14. In discussing causality violations (lines 16-35), the author addresses concerns about all of the following EXCEPT
(A) anticipatory knowledge of events
(B) the belief in a deterministic universe
(C) the mechanics of space travel
(D) cause-and-effect relationships
(E) differential equations based on known forces

15. Which of the following, if true, would undermine the validity of the author’s assumption about the impact of mechanical clocks (“When the first . . . the laboratory”) in lines 37-42?
(A) People were oblivious to time on a physical level before clocks were invented.
(B) People have always perceived time as composed of discrete, uniform intervals.
(C) Concern about time was unnecessary until clocks were invented.
(D) Mental and physiological processes are very predictable.
(E) Body time does not move at a constant rate.

16. The author mentions the brain and the heart (lines 44-45) in order to
(A) demonstrate the rhythmical qualities of timepieces
(B) explain the historical significance of mechanical clocks
(C) emphasize how the two organs interact to regulate internal rhythms
(D) illustrate the body’s different internal clocks
(E) demystify the precision of organic processes

17. The author uses the word “ruthless” (line 46) to suggest that
(A) people are bewildered by the prospect of aging
(B) the human body has mysterious capacities
(C) some people age more rapidly than others do
(D) people’s sense of time changes as they age
(E) the process of aging is relentless

18. The author mentions that “something . . . skipped upward on the page” (lines 60-61) to suggest that
(A) he reread a portion of the page
(B) his vision was affected by the smoke
(C) he traveled back in time in his imagination
(D) his reading reminded him of Papa Joe
(E) he believes that reading is the best way to recreate the past
Questions 19-24 are based on the following passage.

The following passage is an excerpt from a book about twentieth-century developments in art. The author refers here to the modern art that emerged shortly after the turn of the century. Many people found this art shocking.

If the new art is not accessible to everyone, which certainly seems to be the case, this implies that its impulses are not of a generally human kind. It is an art not for people in general but for a special class who may not be better but who are evidently different.

Before we go further, one point must be clarified. What is it that the majority of people call aesthetic pleasure? What happens in their minds when they "like" a work of art; for example, a play? The answer is easy. They like a play when they become interested in the human destinies that are represented, when the love and hatred, the joys and sorrows of the dramatic personages so move them that they participate in it all as though it were happening in real life. And they call a work "good" if it succeeds in creating the illusion necessary to make the imaginary personages appear like living persons. In poetry the majority of people seek the passion and pain of the human being behind the poet. Paintings attract them if they find in them figures of men or women it would be interesting to meet.

It thus appears that to the majority of people aesthetic pleasure means a state of mind that is essentially indistinguishable from their ordinary behavior. It differs merely in accidental qualities, being perhaps less utilitarian, more intense, and free from painful consequences. But the object toward which their attention and, consequently, all their other mental activities are directed is the same as in daily life: people and passions. When forced to consider artistic forms proper—for example, in some surrealistic or abstract art—most people will only tolerate them if they do not interfere with their perception of human forms and fates. As soon as purely aesthetic elements predominate and the story of John and Susie grows elusive, most people feel out of their depth and are at a loss as to what to make of the scene, the book, or the painting. A work of art vanishes from sight for a beholder who seeks in that work of art nothing but the moving fate of John and Susie or Tristan and Isolde. Unaccustomed to behaving in any mode except the practical one in which feelings are aroused and emotional involvement ensues, most people are unsure how to respond to a work that does not invite sentimental intervention.

Now this is a point that has to be made perfectly clear. Neither grieving nor rejoicing at such human destinies as those presented by a work of art begins to define true artistic pleasure; indeed, preoccupation with the human content of the work is in principle incompatible with aesthetic enjoyment proper.

19. The passage is primarily concerned with the
(A) lives artists lead as opposed to the ones they imagine
(B) emotional impact of a painting’s subject matter
(C) nature of the pleasure that most people find in a work of art
(D) wide variety of responses that audiences have to different works of art
(E) contrast between the formal elements of the new art and those of the old

20. As used in line 18, "figures" most nearly means
(A) crude images
(B) abstractions
(C) representations
(D) numbers
(E) famous persons

21. It is most likely that "the story of John and Susie" (line 32) refers to
(A) a fictional work that the author will proceed to critique
(B) a typical narrative of interpersonal relationships
(C) an account of an affair in the form of a mystery
(D) a legendary couple that has fascinated artists through the ages
(E) a cryptic chronicle of renowned historical personages

22. The author suggests that the majority of people resist modern art because they
(A) consider modern artists to be elitist
(B) are too influenced by critics to view the art on its own merits
(C) are annoyed by its social message
(D) find it little of human interest to engage them
(E) find it too difficult to guess at the artist’s source of inspiration

* Tristan and Isolde were star-crossed lovers in a medieval romance.
24. The author’s assumption in the final paragraph (lines 42–47) is that
(A) aesthetic pleasure is a response to the purely artistic elements in a work of art
(B) aesthetic enjoyment of a work of art must focus on the artist’s intentions as much as on the artist’s actual accomplishments
(C) responses to a work of art vary and cannot be easily defined
(D) the evocation of emotional responses by a traditional work of art depends on the moral conventions of the artist’s society
(E) the majority of people trying to interpret a work of art will concentrate on the artistic technique

STOP
If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.
SECTION 4
Time — 25 minutes
18 Questions

Turn to Section 4 (page 5) of your answer sheet to answer the questions in this section.

Directions: This section contains two types of questions. You have 25 minutes to complete both types. For questions 1-8, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes:
1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems.
   They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
4. Unless otherwise specified, the domain of any function \( f \) is assumed to be the set of all real numbers \( x \) for which \( f(x) \) is a real number.

Reference Information

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<td>( C = 2\pi r )</td>
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<td>( A = \frac{1}{2}bh )</td>
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<td>( V = \pi r^2h )</td>
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<td>Pythagorean Theorem</td>
<td>( c^2 = a^2 + b^2 )</td>
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</tbody>
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The number of degrees of arc in a circle is 360.
The sum of the measures in degrees of the angles of a triangle is 180.

1. If \( s + t = 3 \), what is the value of \( s + t - 6 \)?
   (A) -3
   (B) 0
   (C) 3
   (D) 6
   (E) 9

2. On the cube in the figure above, each of the following points is the same distance from \( P \) as it is from \( Q \) EXCEPT
   (A) A
   (B) B
   (C) C
   (D) D
   (E) E

GO ON TO THE NEXT PAGE
3. The bar graph above shows where fraud is committed on the Internet. Which of the following circle graphs most accurately displays the same data?

(A) ![Circle Graph A]
(B) ![Circle Graph B]
(C) ![Circle Graph C]
(D) ![Circle Graph D]
(E) ![Circle Graph E]

4. The numerator of a certain fraction is 5 less than the denominator. If the fraction is equal to \( \frac{3}{4} \), what is the denominator of this fraction?

(A) 8  
(B) 12  
(C) 16  
(D) 20  
(E) 24

5. In the figure above, the scale on the \( x \)-axis is different from the scale on the \( y \)-axis. If the area of \( \triangle ABC \) is 18, what is the value of \( k \)?

(A) \( \frac{3}{10} \)  
(B) \( \frac{3}{4} \)  
(C) \( \frac{6}{5} \)  
(D) \( \frac{3}{2} \)  
(E) 3

GO ON TO THE NEXT PAGE
6. If \( m \) and \( k \) are positive and \( 10m^2k^{-1} = 100m \), what is \( m^{-1} \) in terms of \( k \)?

(A) \( \frac{k}{10} \)
(B) \( \frac{k}{90} \)
(C) \( \frac{\sqrt{k}}{10} \)
(D) \( \frac{1}{10k} \)
(E) \( \frac{1}{90k} \)

8. The figure above shows the graph of a quadratic function \( f \) that has a minimum at the point \((1, 1)\). If \( f(b) = f(3) \), which of the following could be the value of \( b \)?

(A) \(-3\)
(B) \(-2\)
(C) \(-1\)
(D) \(1\)
(E) \(5\)

7. Edna and Nancy leave the house of a common friend at the same time and walk for 4 hours. Edna walks due east at the average rate of 4 kilometers per hour and Nancy walks due north at the average rate of 3 kilometers per hour. What is the straight-line distance between them, in kilometers, at the end of the 4 hours?

(A) \(4\)
(B) \(5\)
(C) \(12\)
(D) \(16\)
(E) \(20\)
Directions: For Student-Produced Response questions 9-18, use the grids at the bottom of the answer sheet page on which you have answered questions 1-8.

Each of the remaining 10 questions requires you to solve the problem and enter your answer by marking the circles in the special grid, as shown in the examples below. You may use any available space for scratchwork.

Write answer in boxes.

Answer: \( \frac{7}{12} \)

Answer: 2.5

Answer: 201

Either position is correct.

Note: You may start your answers in any column, space permitting. Columns not needed should be left blank.

- Mark no more than one circle in any column.
- Because the answer sheet will be machine-scored, you will receive credit only if the circles are filled in correctly.
- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- No question has a negative answer.
- Mixed numbers such as \( \frac{3}{2} \) must be gridded as 3.5 or 7/2. (If \( \frac{3}{2} \) is gridded, it will be interpreted as \( \frac{3}{2} \), not \( \frac{3}{2} \)).

9. A family of 5 is planning a 4-day camping trip. Each person will need to bring 1 bottle of water for each day of the trip. If the water is sold only in 3-bottle packages, how many packages must the family buy for the trip?

|10 - k| = 3
|k - 5| = 8

10. What is the value of \( k \) that satisfies both equations above?
11. What is the value of $x$ in the figure above?

12. The median of a set of 9 consecutive integers is 42. What is the greatest of these 9 integers?

13. Let the function $f$ be defined by $f(x) = x + 1$. If $2f(p) = 20$, what is the value of $f(3p)$?

14. In the figure above, $KN \perp JL$ and $LM \perp JL$. If the lengths of $LN$ and $LM$ are equal, what is the value of $x$?
15. A measuring cup contains $\frac{1}{5}$ of a cup of orange juice. It is then filled to the 1 cup mark with a mixture that contains equal amounts of orange, grapefruit, and pineapple juices. What fraction of the final mixture is orange juice?

16. If $a + 2b$ is equal to 125 percent of $4b$, what is the value of $\frac{a}{b}$?

17. On the number line above, there are 9 equal intervals between 0 and 1. What is the value of $x$?

18. In the $xy$-coordinate plane, the distance between point $B(10, 18)$ and point $A(x, 3)$ is 17. What is one possible value of $x$?

STOP

If you finish before time is called, you may check your work on this section only. Do not turn to any other section in the test.
2. After marching for four hours in temperatures exceeding ninety degrees, the band members were as soaked as if marching through a rainstorm.

(A) if marching  
(B) having marched  
(C) if from marching  
(D) if they had marched  
(E) if they would have marched

3. The harmful effects of smoking on the vascular system is increasingly well documented.

(A) is increasingly well documented  
(B) is more and more documented  
(C) are increasingly well documented  
(D) are increasing in better documentation  
(E) has increased in better documentation

4. The issue the council debated, which was whether repeal of rent control will improve housing or just increase profits for landlords.

(A) debated, which was whether repeal of rent control will improve  
(B) debated was if they would repeal rent control would this improve  
(C) debated was that repeal of rent control would result in improved  
(D) debated was will repealing rent control mean improvement in  
(E) debated was whether repeal of rent control would improve
5. American journalist Harriet Quimby, the first woman to pilot a plane across the English Channel, doing it just nine years after the Wright brothers’ first powered flight.
   (A) Harriet Quimby, the first woman to pilot a plane across the English Channel, doing it
   (B) Harriet Quimby the first woman who piloted a plane across the English Channel, and who did so
   (C) Harriet Quimby became the first woman to have piloted a plane across the English Channel and did it
   (D) Harriet Quimby became the first woman to pilot a plane across the English Channel, accomplishing this feat
   (E) Harriet Quimby was the first woman piloting a plane across the English Channel, the feat was accomplished

6. Naomi and Charles will represent Ammorton High in the debating contest, their work in this having been excellent this year.
   (A) contest, their work in this having been excellent this year
   (B) contest; they have done excellent work this year in this
   (C) contest, for this year they have done excellent work in this
   (D) contest, for their work as public speakers has been excellent this year
   (E) contest; their work as public speakers having been excellent this year

7. The poem’s colorful images and its verbal wit give the reader pleasure.
   (A) give the reader pleasure
   (B) please the one who is reading
   (C) gives pleasure to the one who reads it
   (D) give one pleasure in the reading of it
   (E) gives one pleasure in reading it

8. Being as she is a gifted storyteller, Linda Goss is an expert at describing people and places.
   (A) Being as she is a gifted storyteller
   (B) In being a gifted storyteller
   (C) A gifted storyteller
   (D) Although she is a gifted storyteller
   (E) Telling stories giftedly

9. Although the English artist William Blake never having painted portraits, he regarded them as merely mechanical reproductions that, despite their popularity, lacked true creativity.
   (A) Although the English artist William Blake never having painted portraits, he regarded them
   (B) The English artist William Blake never painted portraits, he regarded them
   (C) Never having painted a portrait, they were regarded by the English artist William Blake
   (D) The English artist William Blake never painted portraits; however, regarding them
   (E) The English artist William Blake never painted portraits because he regarded them

10. The heat was already overwhelming and lasted a week, which duration made it seem sheer torture.
    (A) overwhelming and lasted a week, which duration made it seem
    (B) overwhelming, and because of lasting a week, it made it seem
    (C) overwhelming and lasted the duration of a week to make it seem
    (D) overwhelming, and its lasting a week made it seem
    (E) overwhelming and, by lasting a week, making it seem

11. The reason first novels are so often their writers’ best work is that it draws upon all the experiences of childhood.
    (A) is that it draws upon
    (B) is that these first efforts draw upon
    (C) is because of these first efforts drawing from
    (D) is because of them drawing upon
    (E) is their drawing from
The following sentences test your ability to recognize grammar and usage errors. Each sentence contains either a single error or no error at all. No sentence contains more than one error. The error, if there is one, is underlined and lettered. If the sentence contains an error, select the one underlined part that must be changed to make the sentence correct. If the sentence is correct, select choice E. In choosing answers, follow the requirements of standard written English.

**EXAMPLE:**

The other **delegates** and **him** immediately accepted the resolution drafted by the neutral states. No error

12. Directed by George Wolfe, the Broadway musical *Bring in *Da Noise, Bring in *Da Funk* **telling** how tap dancing **evolved** from the African American experience **in** the decades following the Civil War.

No error

13. The question of **whether** certain chemical fertilizers are a curse **or are they** a blessing **is** still being debated. No error

14. People **which need** immediate reeducation for employment **are** impatient with the prolonged debate over funding for the new national program.

No error

15. The thoughtful student wonders what Patrick Henry meant when he talked about liberty **because** most of the members of the House of Burgesses then **having been** slaveholders. No error

16. One challenge that writer Eleanor Wong Telemaque faced was **how preserving** her ethnic identity while becoming more accessible to readers who **are not** accustomed to writers from other cultural backgrounds. No error

17. No one **objects to** his company, even though he has made insulting remarks about almost every member of the group, when he is a remarkably witty man.

No error
18. Just how critical an improved balance of trade is to a healthy economy has never been more clearer than it is now. No error

19. Critics contend that reforms in welfare has not managed to bring the high percentage of our nation’s children living in poverty the economic security that they need to thrive. No error

20. Crabs living in polluted waters will come in contact with large numbers of disease-causing microorganisms because it feeds by filtering nutrients from water. No error

21. The new system, which uses remote cameras in the catching of speeding motorists, may undermine the police department’s authority. No error

22. Although the politician was initially very sensitive to be criticized by the press, he quickly became more confident about responding to reporters’ sometimes pointed questions. No error

23. Although Pre-Raphaelite artists advocated the close study of nature, their paintings sometimes seem elaborately artificial to modern viewers. No error

24. Lions and tigers may be identical in size, but the tiger is the fiercer animal and the lion the strongest. No error

25. The decline in science education during the period had two causes: less funding for scientific research with a decrease in jobs related to space and defense. No error
26. The number of awards given this year to biochemists accentuate the significant gains being made in the study of the chemistry of living organisms. No error

27. The novel Pride and Prejudice by Jane Austen was once more widely read and was more popular in high schools in the United States than Charlotte Brontë. No error

28. Until it can be replaced by a faster, more efficient, and more economical means of transportation, trucks will carry most of the freight within and through metropolitan areas. No error

29. Nearly all of the editors of the magazine agree that of the two articles to be published, Fujimura's is the more exciting. No error

Directions: The following passage is an early draft of an essay. Some parts of the passage need to be rewritten. Read the passage and select the best answers for the questions that follow. Some questions are about particular sentences or parts of sentences and ask you to improve sentence structure or word choice. Other questions ask you to consider organization and development. In choosing answers, follow the requirements of standard written English.

Questions 30-35 are based on the following passage.

(1) This summer I felt as if I were listening in on the Middle Ages with a hidden microphone. (2) No, there were no microphones in those days. (3) But there were letters, and sometimes these letters speak to me like voices from very long ago.

(4) A book I found contained selected letters from five generations of a family. (5) The Pastons, who lived in a remote part of England over 500 years ago.

(6) Getting anywhere in the Middle Ages was really hard, with deep rivers and few bridges and sudden snowstorms coming on in the empty lands between settlements. (7) An earl rebelled in London, so that a messenger rode for days to tell the distant head of the Paston family of a feared civil war.

(8) Through the letters a modern reader can sense their anxieties about rebellious sons and daughters, belligerent neighbors, outbreaks of plague, and shortages of certain foods and textiles. (9) Unbelievably, there is a 1470 love letter. (10) The man who wrote it ends “I beg you, let no one see this letter. (11) As soon as you have read it, burn it, for I would not want anyone to see it.” (12) I was sitting on the front porch with bare feet on the hottest afternoon in July and I read that with a shiver. (13) I had been part of a centuries-old secret.
30. The best way to describe the relationship of sentence 2 to sentence 1 is that sentence 2
(A) anticipates a reader's possible response to sentence 1
(B) provides historical background for sentence 1
(C) repeats the idea presented in sentence 1
(D) introduces a contrasting view of sentence 1
(E) corrects an inaccuracy stated in sentence 1

31. Which of the following sentences would be most logical to insert before sentence 4?
(A) I first came across these letters while browsing in a library.
(B) No, I am not dreaming; I have been reading them.
(C) On the contrary, microphones are a recent invention.
(D) Obviously, a library can open the door to mystery.
(E) However, letters are not the oldest form of communication.

32. In context, which is the best version of the underlined portions of sentences 4 and 5 (reproduced below)?
A book I found contained selected letters from five generations of a family. The Pastons, who lived in a remote part of England over 500 years ago.
(A) (as it is now)
(B) a family, The Pastons, living
(C) a family; it was the Pastons living
(D) the Paston family, who lived
(E) the family named Paston and living

33. In context, which of the following is the best version of the underlined portion of sentence 7 (reproduced below)?
An earl rebelled in London, so that a messenger rode for days to tell the distant head of the Paston family of a feared civil war.
(A) (As it is now)
(B) An earl had rebelled in London, so
(C) For example, with a rebelling earl in London
(D) While an earl rebels in London,
(E) Once, when an earl rebelled in London,

34. In context, which is the best revision to make to sentence 8 (reproduced below)?
Through the letters a modern reader can sense their anxieties about rebellious sons and daughters, belligerent neighbors, outbreaks of plague, and shortages of certain foods and textiles.
(A) Insert "one's reading of" after "Through”.
(B) Change "their" to "the Pastons'”.
(C) Change "sense" to "record".
(D) Delete some of the examples.
(E) Insert "etc." after "textiles”.

35. All of the following strategies are used by the writer of the passage EXCEPT
(A) background explanation
(B) imaginative description
(C) rhetorical questions
(D) personal narration
(E) direct quotation

STOP
If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.
SECTION 7
Time — 25 minutes
24 Questions

Turn to Section 7 (page 6) of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Hoping to ------- the dispute, negotiators proposed a compromise that they felt would be ------- to both labor and management.

(A) enforce . useful
(B) end . divisive
(C) overcome . unattractive
(D) extend . satisfactory
(E) resolve . acceptable

1. Commerce on the remote island was conducted exclusively by -------, exchanging goods for goods.
   (A) credit  (B) loan  (C) faith
   (D) patronage  (E) barter

2. The existence of environmental contamination is no longer a point of -------; government, industry, and the public agree that it is a serious problem.
   (A) concern  (B) cooperation  (C) urgency
   (D) relevance  (E) dispute

3. In rock climbing, survival depends as much on -------, the ability to perceive without conscious reasoning, as on physical strength.
   (A) autonomy  (B) incoherence  (C) intuition
   (D) sophistry  (E) receptivity

4. Using computer labs to ------- classroom instruction is most effective when the curriculum ------- lab exercises and classroom teaching in a coordinated manner.
   (A) supplement . integrates
   (B) substantiate . undermines
   (C) remedy . compromises
   (D) disparage . reinforces
   (E) foster . curtails

5. Many ------- of the style of painting exemplified by Marcel Duchamp’s work focused on Duchamp’s Nude Descending a Staircase as the ------- of what they detested about modern art.
   (A) critics . epitome
   (B) proponents . realization
   (C) advocates . embodiment
   (D) debunkers . rejection
   (E) belittlers . reversal

6. Colonial American playwright Mercy Otis Warren was known for her political -------; her keen judgment and insight were widely acknowledged.
   (A) partisanship  (B) intemperance  (C) acumen
   (D) irreverence  (E) interest

7. Johnson’s writing is considered ------- and ------- because it is filled with obscure references and baffling digressions.
   (A) deceiving . ingenuous
   (B) arcane . abstruse
   (C) spare . didactic
   (D) lucid . definitive
   (E) concise . esoteric

8. Because the congresswoman has been so openhanded with many of her constituents, it is difficult to reconcile this ------- with her private -------.
   (A) selfishness . inattention
   (B) insolence . virtue
   (C) magnanimity . pettiness
   (D) opportunism . ambition
   (E) solicitousness . generosity
The passages below are followed by questions based on their content; questions following a pair of related passages may also be based on the relationship between the paired passages. Answer the questions on the basis of what is stated or implied in the passages and in any introductory material that may be provided.

Questions 9-12 are based on the following passages.

Passage 1

What accounts for the inexorable advance of the giant sports utility vehicle (SUV) into our lives? Why do we want high-clearance trucks with four-wheel drive and front bumpers as big as battering rams? A large part of the answer lies in the fake Western names so many of them carry. No one much cares about what those names denote (lakes, frontier towns, mountain ranges); what matters is their connotations of rugged individualism, mastery over the wilderness, cowboy endurance. The names simply magnify the appeal of these vehicles that are the Frankensteinian concoctions of our private anxieties and desires.

Passage 2

When a major manufacturer launched an SUV named for an Alaskan mountain, an auto-trade publication discussed the subtleties of its name. It proposed that even though most buyers will never venture into territory any less trampled than the parking lot of the local shopping mall, the important goal of the marketing hype is to plant the image in customers’ minds that they can conquer rugged terrain. Perhaps we’re trying to tame a different kind of wilderness. Indeed, in an age when many who can afford to do so live in limited-access communities in houses guarded by sophisticated surveillance systems, the SUV is the perfect transportation shelter to protect us from fears both real and imagined.

9. Passage 1 and Passage 2 both support which of the following generalizations about buyers of SUVs?
   (A) They intend to drive them on rough terrain.
   (B) They wish to live in mountainous regions.
   (C) They are wealthier than most other car buyers.
   (D) They are influenced by marketing strategies.
   (E) They are insecure about their social status.

10. Which of the following aspects of SUVs is addressed in Passage 1 but not in Passage 2?
   (A) Their imposing bulk
   (B) Their escalating cost
   (C) The psychology of their owners
   (D) Their environmental impact
   (E) The significance of their names

11. Which of the following in Passage 1 exemplifies the “subtleties” mentioned in Passage 2, line 15?
   (A) “inexorable advance” (line 1)
   (B) “battering rams” (line 4)
   (C) “lakes, frontier towns, mountain ranges” (line 7)
   (D) “connotations” (line 8)
   (E) “Frankensteinian concoctions” (line 11)

12. Passage 1 and the article cited in Passage 2 both indicate that the imagery used to market SUVs is intended to
   (A) appeal to drivers’ primitive instincts
   (B) stir yearnings for a simpler way of life
   (C) engender feelings of power and control
   (D) evoke the beauty of unspoiled nature
   (E) create an aura of nonconformity
Questions 13-24 are based on the following passages.

These two passages discuss different aspects of the impact of the First World War (1914-1918) on British people and society. Passage 1 is from a book that examines the depiction of the war in literature, letters, and newspapers; Passage 2 is from a book that examines the differences between men’s and women’s experiences of war.

Passage 1

Even if the civilian population at home had wanted to know the realities of the war, they couldn’t have without experiencing them: its conditions were too novel, its industrialized ghastliness too unprecedented. The war would have been simply unbelievable. From the very beginning a fissure was opening between the army and the civilians.

The causes of civilian incomprehension were numerous. Few soldiers wrote the truth in letters home for fear of causing needless uneasiness. If they did ever write the truth, it was excised by company officers, who censored all outgoing mail. The press was under rigid censorship throughout the war. Only correspondents willing to file wholesome, optimistic copy were permitted to visit France, and even then they were seldom allowed near the battlefields of the front line. Typical of these reporters was George Adam, Paris correspondent of the Times. His Behind the Scenes at the Front, published in 1915, exudes cheer, as well as warm condescension, toward the common British soldier, whom he depicts as well fed, warm, safe, and happy—better off, indeed, than at home.

Lord Northcliffe, the publisher of the Times, eventually assumed full charge of government propaganda. It is no surprise to find Northcliffe’s Times on July 3, 1916, reporting the first day’s attack during the battle of the Somme with an airy confidence which could not help but deepen the division between those on the spot and those at home. “Sir Douglas Haig telephoned last night,” says the Times, “that the general situation was favorable.” It soon ascends to the rhetoric of heroic romance: “There is a fair field . . . and we have elected to fight out our quarrel with the Germans and to give them as much battle as they want.” No wonder communication failed between the troops and those who could credit prose like that as factual testimony.

The British army had nearly 60,000 casualties, the largest number for any single day in the army’s history.

Passage 2

The First World War is a classic case of the dissonance between official, male-centered history and unofficial female history. Not only did the apocalyptic events of this war have very different meanings for men and women, such events were in fact very different for men and women, a point understood almost at once by an involved contemporary like Vera Brittain. She noted about her relationship with her soldier fiancé that the war put a “barrier of indescribable experience between men and women whom they loved. Sometimes (I wrote at the time) I fear that even if he gets through, what he has experienced out there may change his ideas and tastes utterly.”

The nature of the barrier thrust between Vera Brittain and her fiancé, however, may have been even more complex than she herself realized, for the impediment preventing a marriage of their true minds was constituted not only by his altered experience but by hers. Specifically, as young men became increasingly alienated from their pre-war selves, increasingly immured in the muck and blood of the battlefields, increasingly abandoned by the civilization of which they had ostensibly been heirs, women seemed to become, as if by some uncanny swing of history’s pendulum, ever more powerful. As nurses, as munitions workers, as bus drivers, as soldiers in the agricultural “land army,” even as wives and mothers, these formerly subservient creatures began to loom larger. A visitor to London observed in 1918 that “England was a world of women—women in uniforms.”

The wartime poems, stories, and memoirs by women sometimes subtly, sometimes explicitly explore the political and economic revolution by which the First World War at least temporarily dispossessed male citizens of the primacy that had always been their birthright, while permanently granting women access to both the votes and the professions that they had never before possessed. Similarly, a number of these women writers covertly or overtly celebrated the release of female desires and powers which that revolution made possible, as well as the reuniﬁcation (or even reunification) of women which was a consequence of such liberated energies.

Their enthusiasm, which might otherwise seem like morbid gloating, was explained by Virginia Woolf, a writer otherwise known for her pacifist sympathies:

How . . . can we explain that amazing outburst in August 1914, when the daughters of educated men . . . rushed into hospitals . . . drove lorries, worked in ﬁelds and munitions factories, and used all their immense stores of charm . . . to persuade young men that to ﬁght was heroic . . .? So profound was (woman’s) unconscious loathing for the education of the private house that she would undertake any task, however menial, exercise any fascination, however fatal, that enabled her to escape. Thus consciously she desired “our splendid Empire”; unconsciously she desired our splendid war.
13. Passage 2 is unlike Passage 1 in that Passage 2
   (A) describes war as dehumanizing
   (B) endorses the official view of the war
   (C) discusses war in terms of how it affects women
   (D) tries to identify the root causes of the conflict
   (E) criticizes the censorship of information about
       the war

14. The "fissure" (line 6) was primarily caused by the
   (A) civilians' ignorance about the soldiers' experience
   (B) discrepancy between the experiences of men and
       of women
   (C) behavior of the officers who led the battles
   (D) guilt that civilians felt about sending young men
       off to war
   (E) special privileges granted to war correspondents

15. The footnote about the battle of the Somme adds
    information that
    (A) shows how history has been rewritten to glorify
        the war
    (B) trivializes the dangers faced by most of the
        soldiers
    (C) emphasizes the inaccuracy of the published reports
    (D) suggests that the costs of war outweighed its
        benefits
    (E) offers a journalist's personal reflection on the war

16. In Passage 1, the author suggests that the attitudes of
    "those at home" (line 26) were strongly influenced by
    (A) the government's inadequate control over
        propaganda
    (B) the lack of opportunities for soldiers to write home
    (C) the disparity between men's and women's views
        of war
    (D) efforts of pacifists to end the war
    (E) censored reports from the press

17. In line 33, "credit" most nearly means
    (A) award
    (B) believe
    (C) enter
    (D) supply
    (E) enrich

18. In Passage 2, the author mentions Vera Brittain
    (line 40) primarily to
    (A) support an argument by quoting material written
        at the time of the war
    (B) present an example of the kind of powers women
        gained during the war
    (C) describe how a writer manipulated the facts about
        the war
    (D) discuss the wartime literature produced by women
    (E) dispute recent historians' views of the war

19. In line 58, the reference to "wives and mothers" most
    directly implies the author's assumption that
    (A) families prospered more when women became
        head of the household
    (B) soldiers were unaware of the fundamental change
        taking place in society
    (C) women embraced their chance to work outside the
        home
    (D) women were anxious about fulfilling family
        responsibilities
    (E) women in domestic roles had previously exercised
        little authority

20. In line 64, the "revolution" refers to
    (A) women's literary output during the war
    (B) women's pursuit of rights previously unavailable
        to them
    (C) the change that men underwent after experi-
        encing war
    (D) the redistribution of power from the upper to the
        middle class
    (E) the growing equalization of men's and women's
        wages

21. The author of Passage 2 implies that women's
    enthusiasm "might ... seem like morbid gloating"
    (lines 74-75) because
    (A) women's progress caused the deterioration of
        men's status
    (B) women achieved recognition as the real peace-
        makers in the war
    (C) women boasted that the war would be lost with-
        out them
    (D) women celebrated the fact that they did not have
        to fight in the war
    (E) women were enjoying power while men were in
        battle
22. In lines 84-85, the discussion of women’s involvement with “menial” tasks and “fatal” fascinations primarily serves to emphasize the
   (A) far-reaching consequences of women’s roles during wartime
   (B) extent to which women felt stifled in their traditional roles
   (C) contrast between how women idealized war and what it was really like
   (D) desire by women to escape the horrors of war
   (E) risks that women took to fight in the war

23. What do *Behind the Scenes at the Front* (lines 16-17) and “wartime poems, stories and memoirs” (line 62) have in common?
   (A) Both caused needless uneasiness among civilians.
   (B) Both deliberately reflected the views of the government.
   (C) Both changed the status quo for women in wartime Britain.
   (D) Both encouraged writers to take their craft more seriously.
   (E) Neither focused on the realities of the battlefield.

24. Which of the following statements about the effect of the First World War is supported by both passages?
   (A) Officers resented the government’s complacency.
   (B) Women gained independence in postwar Britain.
   (C) Soldiers felt isolated from parts of civilian society.
   (D) Writers failed in their attempts to describe the atrocities of war.
   (E) War proved an undesirable way to resolve the European conflict.
Turn to Section 8 (page 7) of your answer sheet to answer the questions in this section.

Directions: For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes:
1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
4. Unless otherwise specified, the domain of any function \( f \) is assumed to be the set of all real numbers \( x \) for which \( f(x) \) is a real number.

Reference Information:
- \( A = \pi r^2 \quad C = 2\pi r \)
- \( A = \ell w \quad A = \frac{1}{2}bh \quad V = \ell wh \quad V = \pi r^2h \quad c^2 = a^2 + b^2 \)
- Special Right Triangles

The number of degrees of arc in a circle is 360.
The sum of the measures in degrees of the angles of a triangle is 180.

1. If \( E \) is the set of even integers, \( P \) is the set of positive integers, and \( F \) is the set of integers less than 5, which of the following integers will be in all three sets?
   - (A) 6
   - (B) 4
   - (C) 1
   - (D) 0
   - (E) −2

2. If \( 8 + \sqrt{k} = 15 \), then \( k = \)
   - (A) 7
   - (B) 49
   - (C) 529
   - (D) \( \sqrt{7} \)
   - (E) \( \sqrt{23} \)
3. In a poll, 35 people were in favor of building a new library, 14 people were against it, and 1 person had no opinion. What fraction of those polled were in favor of building a new library?

   (A) \(\frac{7}{10}\)
   (B) \(\frac{2}{3}\)
   (C) \(\frac{3}{7}\)
   (D) \(\frac{1}{3}\)
   (E) \(\frac{3}{10}\)

5. According to the graph above, between which two consecutive years was there the greatest change in the price of coffee?

   (A) 1981 and 1982
   (B) 1982 and 1983
   (C) 1983 and 1984
   (D) 1984 and 1985
   (E) 1985 and 1986

4. In the figure above, what is the value of \(t + u\) ?

   (A) 80
   (B) 90
   (C) 100
   (D) 110
   (E) 120
6. The graph of \( y = g(x) \) is shown above. If \( g(k) = 1 \), which of the following is a possible value of \( k \)?

(A) \(-1.5\)  
(B) \(-0.5\)  
(C) \(1\)  
(D) \(1.5\)  
(E) \(2\)

8. In the \( xy \)-plane, the center of a circle has coordinates \((3, -7)\). If one endpoint of a diameter of the circle is \((-2, -7)\), what are the coordinates of the other endpoint of this diameter?

(A) \((-7, -7)\)  
(B) \((-2, -2)\)  
(C) \((3, -2)\)  
(D) \((8, -2)\)  
(E) \((8, -7)\)

9. A regulation for riding a certain amusement park ride requires that a child be between 30 inches and 50 inches tall. Which of the following inequalities can be used to determine whether or not a child’s height \( h \) satisfies the regulation for this ride?

(A) \(|h - 10| < 50\)  
(B) \(|h - 20| < 40\)  
(C) \(|h - 30| < 20\)  
(D) \(|h - 40| < 10\)  
(E) \(|h - 45| < 5\)

10. A right circular cylinder with radius 5 and height 4 has volume \( v \). In terms of \( v \), what is the volume of a right circular cylinder with radius 5 and height 8?

(A) \(v + 4\)  
(B) \(2v\)  
(C) \(4v\)  
(D) \(6v\)  
(E) \(8v\)
11. If \(k\), \(n\), and \(r\) are integers, let \(k\) \(\triangle\) \((n, r)\) be defined to be true only if \(n < k < r\). If \(-2\) \(\triangle\) \((n, 0)\) is true, which of the following could be a possible value of \(n\) ?

I. -3
II. -1
III. 3

(A) I only
(B) III only
(C) I and II
(D) I and III
(E) II and III

13. If \(x\), \(y\), and \(z\) are positive integers such that the value of \(x + y\) is even and the value of \((x + y)^2 + x + z\) is odd, which of the following must be true?

(A) \(x\) is odd.
(B) \(x\) is even.
(C) If \(z\) is even, then \(x\) is odd.
(D) If \(z\) is even, then \(xy\) is even.
(E) \(xy\) is even.

14. If \(0 < x < 1\), which of the following statements must be true?

I. \(x^2 > x^3\)
II. \(x > \frac{x}{2}\)
III. \(x > x^3\)

(A) I only
(B) II only
(C) I and II only
(D) I and III only
(E) I, II, and III
15. Doug's biology experiment involved timing 12 hamsters in a maze. Each hamster received at least one practice before being timed. The scatterplot above shows the time each hamster took to complete the maze and the corresponding number of practices that each hamster received. Based on the data, which of the following functions best models the relationship between t, the number of seconds to complete the maze, and p, the number of practices?

(A) \( t(p) = 44 \)

(B) \( t(p) = p \)

(C) \( t(p) = 44p \)

(D) \( t(p) = \frac{p}{44} \)

(E) \( t(p) = p + 44 \)

16. The pattern shown above is composed of rectangles. This pattern is used repeatedly to completely cover a rectangular region 12L units long and 10L units wide. How many rectangles of dimension L by W are needed?

(A) 30

(B) 36

(C) 100

(D) 150

(E) 180

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.
SECTION 9
Time — 20 minutes
19 Questions

Turn to Section 9 (page 7) of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Hoping to _______ the dispute, negotiators proposed a compromise that they felt would be _______ to both labor and management.

(A) enforce . . . useful
(B) end . . . divisive
(C) overcome . . . unattractive
(D) extend . . . satisfactory
(E) resolve . . . acceptable  

1. As sea urchins are becoming scarcer, divers are _______ to more dangerous depths to retrieve them, _______ the potential for diving injuries.

(A) swimming . . . lessening
(B) descending . . . increasing
(C) removing . . . avoiding
(D) returning . . . seeing
(E) climbing . . . creating

2. Anne mentioned John's habitual boasting about his wardrobe as an example of his _______ ways.

(A) erratic  (B) egotistical  (C) flexible  
(D) tactful  (E) inconspicuous

3. His peers respected him because he was both _______ and _______: steadfast in his beliefs and tactful in his negotiations.

(A) resourceful . . . courteous
(B) tenacious . . . manipulative
(C) determined . . . demonstrative
(D) resolute . . . diplomatic
(E) outspoken . . . indiscriminate

4. Considering that many women had little control over their own lives in medieval England, Margery Kempe's fifteenth-century autobiography demonstrates a remarkable degree of _______.

(A) consecration  (B) rationalism
(C) autonomy  (D) efficacement
(E) simplicity

5. Following the decree banning _______ acts, suspected _______ could be forcibly detained without the filing of formal charges.

(A) rebellious . . . conformists
(B) apolitical . . . loyalists
(C) seditious . . . insurrectionists
(D) subversive . . . nonpartisans
(E) supportive . . . opponents

6. By portraying a wide spectrum of characters in his one-man show, John Leguizamo provides a _______ to the theater's tendency to offer a limited range of roles to Latino actors.

(A) corrective  (B) tribute  (C) corollary
(D) stimulus  (E) precursor
The passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in the passage and in any introductory material that may be provided.

Questions 7-19 are based on the following passage.

The following passage, set in the early 1970’s, is from a 1992 novel. The principal characters, Virginia and Clayton, are two cellists in a college orchestra.

She’d met lots of crazy musicians, but no one like Clayton. He was as obsessed as the others, but he had a quirky sense of humor, a slow ironic counterpart to his own beliefs. And he didn’t look quite like anyone else.

He wore his hair parted dangerously near the middle and combed it in little ripples like Cab Calloway. Though sometimes he let it fly up a bit at the ends in deference to the campus pressure for Afros. His caramel-colored skin darkened to toffee under fluorescent light but sometimes took on a golden sheen, especially in the vertical shafts of sunlight that poured into his favorite practice room where she’d often peek in on him—an uncanny complexion, as if the shades swirled just under the surface.

Virginia’s friends gave her advice on how to get him.

“You two can play hot duets together,” they giggled.

As it turned out, she didn’t have to plan a thing. She was reading one afternoon outside the Fine Arts Building when it suddenly turned cold. If she went back to the dorm for a sweater, she’d be late for orchestra rehearsal. So she stuck it out until a few minutes before rehearsal at four. By that time, her fingers were so stiff she had to run them under hot water to loosen them up. Then she hurried to the cello room, where all the instruments were lined up like novitiates; she felt a strange reverence every time she stepped across the threshold into its cool serenity. There they stood, obedient yet volubulous in their molded cases. In the dim light their plump forms looked sadly human, as if they were waiting for something better to come along but knew it wouldn’t.

Virginia grabbed her cello and was halfway down the hall when she realized she’d forgotten to leave her books behind. She decided against turning back and continued to the basement, where the five-till-four pandemonium was breaking loose. Clayton was stuffing his books into his locker.

“Hey, Clayton, how’s it going?”

As if it were routine, he took her books and wedged them in next to his. They started toward the orchestra hall. Virginia cast a surreptitious glance upward: five minutes to four or not, Clayton was not rushing. His long, gangling frame seemed to be held together by molasses; he moved deliberately, negotiating the crush while humming a tricky passage from Schumann,3 sailing above the mob.

After rehearsal she reminded him that her books were in his locker.

“I think I’ll go practice,” he said. “Would you like to listen?”

“I’ll miss dinner,” she replied, and was about to curse herself for her honesty when he said, “I have cheese and soup back at the fraternity house, if you don’t mind the walk.”

The walk was twenty minutes of agonizing bliss, with the wind off the lake whipping her blue, and Clayton too involved in analyzing the orchestra’s horn section to notice. When they reached the house, a brick building with a crumbling porch and weeds cranking the front path, she was nearly frozen through. He heated up a can of soup, and plunked the cheese down in the center of the dinette table.

“It’s not much,” he apologized, but she was thinking

A loaf of bread, a jug of wine,4 and felt sated before lifting the first spoonful. The house was rented to Alpha Phi Alpha, one of three Black fraternities on campus. It had a musty tennis-shoes-and-ripe-laundry smell. Books and jackets were strewn everywhere, dishes piled in the sink.

“When did you begin playing?” she asked.

“I began late. I’m afraid,” Clayton replied. “Ninth grade. But I felt at home immediately. With the music, I mean. The instrument took a little longer. Everyone said I was too tall to be a cellist.” He grimaced.

Virginia watched him as he talked. He was the same golden brown as the instrument, and his mustache followed the lines of the cello’s scroll.

“So what did you do?” she asked.

“Whenever my height came up, I would say, ‘Remember the bumblebee.’ ”

“What do bumblebees have to do with cello?”

“The bumblebee, aerodynamically speaking, is too large for flight. But the bee has never heard of aerodynamics, so it flies in spite of the laws of gravity. I merely wrapped my legs and arms around the cello and kept playing.”

Music was the only landscape in which he seemed at ease. In that raunchy kitchen, elbows propped on either side of the cooling soup, he was fidgety, even a little awkward. But when he sat up behind his instrument, he had the irresistible beauty of someone who had found his place.

1 American jazz musician and bandleader (1907-1994)
2 Persons who have entered a religious order but have not yet taken final vows
3 German composer (1810-1856)
4 A reference to Edward Fitzgerald’s “A jug of wine, a loaf of bread, and thou,” a line from The Rubaiyat of Omar Khayyam

GO ON TO THE NEXT PAGE
7. The passage is best described as
   (A) a social commentary on classical musicians in the early 1970’s
   (B) a nostalgic depiction of students in college orchestras
   (C) a story of how one individual inspired many others
   (D) an introduction to a character through the perspective of another character
   (E) an illustration of a strained but enduring relationship

8. The references to “fluorescent light” (line 9) and “sunlight” (line 11) suggest the
   (A) way that Clayton’s demeanor brightened when Virginia was nearby
   (B) contrast between Clayton’s restraint and Virginia’s passion
   (C) attentiveness with which Virginia regarded Clayton
   (D) monotony of Clayton’s everyday routine
   (E) superficiality of Clayton’s beauty

9. The imagery in lines 12-13 (“as if... surface”) conveys which of the following about Clayton?
   (A) His complicated nature
   (B) His erratic reactions
   (C) His unseemly complacency
   (D) His passionate loyalty
   (E) His tendency to argue

10. As contrasted with the language in the opening paragraph, the advice offered by Virginia’s friends (lines 14-15) functions primarily to
    (A) break the mood of abstracted musing
    (B) introduce an element of foreboding
    (C) poke fun at the pretensions of romantic music
    (D) contradict Virginia’s opinion of Clayton
    (E) counter Clayton’s offbeat sense of humor

11. As described in lines 22-25, the atmosphere in the cello room is most nearly one of
    (A) creativity
    (B) emptiness
    (C) urgency
    (D) sanctity
    (E) accomplishment

12. In line 42, “crush” most nearly means
    (A) pressure
    (B) crowd
    (C) power
    (D) infatuation
    (E) critical condition

13. In lines 42-43, the reference to Clayton’s hummin creates an impression that he is
    (A) uncomfortable with making conversation
    (B) amused by the plight of other musicians
    (C) unaware of his effect on other people
    (D) compelled to show off his talent
    (E) immersed in his private world

14. In the context of the passage, Clayton’s statement in line 46 (“I think... practice”) emphasizes his
    (A) need to make a dramatic first impression
    (B) willingness to disrupt a fixed routine
    (C) consuming interest in music
    (D) distaste for competition
    (E) insecurity around other musicians

15. In line 52, the phrase “agonizing bliss” suggests that Virginia’s pleasure is tempered by
    (A) Clayton’s cold manner
    (B) Clayton’s visible uneasiness
    (C) her physical discomfort
    (D) her overriding self-consciousness
    (E) her sense that the happiness would be short-lived

16. In lines 59-61, Virginia’s reaction to the meal most directly suggests that she
    (A) was contented enough without the food
    (B) was amused by Clayton’s attempts at hospitality
    (C) was suddenly aware of the chaos in the fraternity kitchen
    (D) felt guilty about making Clayton uneasy
    (E) did not find the atmosphere conducive to romance

17. The description in lines 70-72 emphasizes how
    (A) strikingly Clayton resembles famous musicians
    (B) awkwardly Clayton behaves in social situations
    (C) profoundly Clayton is affected by music
    (D) closely Virginia associates Clayton with his cello
    (E) strongly Virginia identifies with Clayton’s situation
18. In referring to the bumblebee (lines 77-80), Clayton conveys his
(A) superstitious nature
(B) cunning instincts
(C) frail pride
(D) resolute determination
(E) volatile temperament

19. In lines 82-85, the descriptions of Clayton in the kitchen and Clayton behind his instrument present a contrast between his
(A) chaos and organization
(B) mediocrity and excellence
(C) pretension and genuineness
(D) laziness and dedication
(E) clumsiness and gracefulness

STOP
If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.
The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence—clear and precise, without awkwardness or ambiguity.

EXAMPLE:
Laura Ingalls Wilder published her first book and she was sixty-five years old then.
(A) and she was sixty-five years old then
(B) when she was sixty-five
(C) at age sixty-five years old
(D) upon the reaching of sixty-five years
(E) at the time when she was sixty-five

1. At Versailles after the First World War, the Allies believed they had drafted a treaty that would have ensured permanent peace.
(A) would have ensured permanent peace
(B) would ensure permanent peace
(C) had ensured permanent peace
(D) will ensure permanent peace
(E) ensures permanent peace

2. The new bird sanctuary, consisting of one hundred acres of unspoiled tideland, and is protected by the state.
(A) sanctuary, consisting of one hundred acres of unspoiled tideland, and is protected by the state
(B) sanctuary is protected by the state, it consists of one hundred acres of unspoiled tideland
(C) sanctuary, consisting of one hundred acres of unspoiled tideland, is protected by the state
(D) sanctuary is protected by the state consisting of one hundred acres of unspoiled tidal
(E) sanctuary to consist of one hundred acres of unspoiled tideland and to be protected by the state

3. Most people know about calories and nutrition, but they do not use this knowledge to lose weight permanently and keep it off.
(A) permanently and keep it off
(B) permanent and have it stay off
(C) and have it be off permanently
(D) and make it permanent
(E) and keep it off permanently

4. No sooner had Andrea del Sarto traveled to France to work for the French king but his wife persuaded him to return to Italy.
(A) but his wife persuaded him to return
(B) but his wife had him persuaded into returning
(C) than he was persuaded by his wife that he will return
(D) but he was persuaded by his wife into returning
(E) than his wife persuaded him to return
5. During the 1980's and early 1990's, one reason highways in the United States became safer than ever, the use of seat belts increased to about 67 percent nationwide.
   (A) ever, the use of seat belts increased to about 67 percent nationwide
   (B) ever, nationwide, the use of seat belts increased to about 67 percent
   (C) ever, there was a nationwide increase in seat belt use to 67 percent
   (D) ever since they increased seat belt use to 67 percent nationwide
   (E) ever was that the use of seat belts nationwide increased to about 67 percent

6. Chaplin will not be remembered for espousing radical causes any more than they will remember Wayne for endorsing conservative political candidates.
   (A) any more than they will remember Wayne
   (B) as will Wayne not be remembered
   (C) any more than Wayne will be remembered
   (D) just as they will not remember Wayne
   (E) no more than Wayne will be remembered

7. Civil rights leader and author W. E. B. Du Bois was interested in drama because he believed that if you represented historical events on stage it could have a greater, more lasting effect than any exhibit or lecture.
   (A) if you represented historical events on stage it
   (B) with the events of history represented on stage they
   (C) events which were represented historically on stage
   (D) by representing historical events on stage
   (E) representing historical events on stage

8. Many colleges are adopting work-study programs, which offer practical advantages to both the students and the institutions.
   (A) programs, which offer practical advantages to both the students and
   (B) programs, which offers practical advantages to both the students and
   (C) programs, which offer both practical advantages to the students plus
   (D) programs; it offers practical advantages to both the students as well as
   (E) programs; this offers practical advantages both to the students and

9. One of the first people to recognize the talent of Langston Hughes, Jessie Fauset, was an editor at Crisis magazine, publishing Hughes’s poetry in 1921.
   (A) Jessie Fauset, was an editor at Crisis magazine, publishing
   (B) Jessie Fauset who edited Crisis magazine and published
   (C) Jessie Fauset edited Crisis magazine who published
   (D) Jessie Fauset, an editor at Crisis magazine, published
   (E) the editor, Jessie Fauset, published at Crisis magazine

10. Until being widely hunted for its ivory and blubber in the eighteenth century, walruses were plentiful in the waters of the northeastern United States.
    (A) Until being widely hunted for its
    (B) Before having been widely hunted for its
    (C) Up to them being widely hunted for their
    (D) Until they were widely hunted for their
    (E) Before they have been widely hunted for their

11. Jesse passed the California bar examination last year, and he has been practicing law in California ever since.
    (A) and he has been practicing law in California ever since
    (B) since that time he has practiced law there
    (C) where ever since he practices law
    (D) he has been practicing law in California since then
    (E) and since then is practicing law there

12. Persuading even the queasiest of readers to spend hours learning about an extravagant variety of invertebrates, the effect of Richard Conniff’s Spineless Wonders is to render the repulsive beautiful.
    (A) the effect of Richard Conniff’s Spineless Wonders is to render the repulsive beautiful
    (B) Richard Conniff renders the repulsive beautiful in Spineless Wonders
    (C) the effect of Spineless Wonders, by Richard Conniff, is to render the repulsive beautiful
    (D) Richard Conniff has had the effect of rendering the repulsive beautiful in Spineless Wonders
    (E) Spineless Wonders, by Richard Conniff, has effect in rendering the repulsive beautiful
13. Most drivers know not only that excessive speeding on highways wastes gasoline, but also that it is dangerous.
   (A) know not only that excessive speeding on highways wastes
   (B) know that excessive speeding on highways could be wasteful of
   (C) are knowledgeable that excessive speeding on highways not only wastes
   (D) have known that excessive speeding on highways wastes not only
   (E) know that excessive speeding on highways not only by itself can waste

14. Walt Disney’s first success was his third Mickey Mouse film, in which Disney produced a cartoon with sound, and Mickey was made to talk.
   (A) sound, and Mickey was made to talk
   (B) sound and making Mickey talk
   (C) sound, with the result being Mickey talking
   (D) sound in where Mickey talks
   (E) sound and made Mickey talk

STOP
If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.