Answer Sheets

SECTION 1

1	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	6	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	11	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	16	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
2	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	7	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	12	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	17	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
3	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	8	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	13	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	18	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
4	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	9	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	14	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	19	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
5	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	10	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	15	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	20	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

SECTION 2

1	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	7	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	12	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	17	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
2	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	8	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	13	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	18	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
3	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	9	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	14	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	19	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
4	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	10	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	15	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	20	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
5	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	11	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	16	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	21	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
6	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ						

SECTION 3

1	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	9	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	17	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	24	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
2	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	10	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	18	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	25	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
3	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	11	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	19	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	26	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
4	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	12	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	20	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	27	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
5	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	13	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	21	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	28	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
6	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	14	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	22	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	29	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
7	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	15	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	23	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	30	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
8	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	16	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ				

SECTION 4

1	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	8	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	15	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	22	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
2	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	9	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	16	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	23	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
3	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	10	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	17	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	24	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
4	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	11	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	18	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	25	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
5	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	12	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	19	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	26	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
6	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	13	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	20	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	27	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
7	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	14	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	21	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ		

SECTION 5

1	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	7	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	12	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	17	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
2	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	8	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	13	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	18	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
3	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	9	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	14	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	19	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
4	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	10	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	15	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	20	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
5	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	11	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	16	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	21	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
6	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ						

1

Answer Sheets

SECTION 6

1 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   5 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   9 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   13 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

2 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   6 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   10 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   14 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

3 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   7 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   11 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   15 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

4 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   8 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   12 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   16 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

SECTION 7

For Questions 1–13:
Only answers entered in the ovals in each grid area will be scored.
You will not receive credit for anything written in the boxes above the ovals.

1   2   3   4   5

6   7   8   9   10

11   12   13

Practice Test

1

Section 1

20 Questions ■ Time—25 Minutes

Directions: Read each of the passages carefully, then answer the questions that come after them. The answer to each question may be stated overtly or only implied. You will not have to use outside knowledge to answer the questions—all the material you will need will be in the passage itself. In some cases, you will be asked to read two related passages and answer questions about their relationship to one another. Mark the letter of your choice on your answer sheet.

Musical notes, like all sounds, are a result of the sound waves created by movement, like the rush of air through a trumpet. Musical notes are very regular sound waves. The qualities of these waves—how much they displace molecules, and how often they do so—give the note its particular sound. How much a sound wave displaces molecules affects the volume of the note. How frequently a sound wave reaches your ear determines whether the note is high- or low-pitched. When scientists describe how high or low a sound is, they use a numerical measurement of its frequency, such as "440 vibrations per second," rather than the letters musicians use.

1. In this passage, musical notes are used primarily to

   (A) illustrate the difference between human-produced and nonhuman-produced sound.

   (B) demonstrate the difference between musical sound and all other sound.

   (C) provide an example of sound properties common to all sound.

   (D) convey the difference between musical pitch and frequency pitch.

   (E) explain the connection between number and letter names for sounds.

2. All of the following are true statements about pitch, according to the passage, EXCEPT:

(A) Nonmusical sounds cannot be referred to in terms of pitch.

(B) Pitch is solely determined by the frequency of the sound wave.

(C) Pitch is closely related to the vibration of molecules.

(D) Pitch cannot be accurately described with letter names.

(E) Humans' perception of pitch is not affected by the intensity of the sound wave.

Line Margaret Walker, who would become
one of the most important twentieth-
century African-American poets, was
born in Birmingham, Alabama, in 1915.
(5) Her parents, a minister and a music
teacher, encouraged her to read poetry
and philosophy even as a child. Walker
completed her high school education at
Gilbert Academy in New Orleans and
(10) went on to attend New Orleans Univer-
sity for two years. It was then that the
important Harlem Renaissance poet
Langston Hughes recognized her talent
and persuaded her to continue her
(15) education in the North. She transferred
to Northwestern University in Illinois,
where she received a degree in English in
1935. Her poem, "For My People,"
which would remain one of her most
(20) important works, was also her first
publication, appearing in *Poetry* maga-
zine in 1937.

3. The passage cites Walker's interaction with Langston Hughes as

(A) instrumental in her early work being published.

(B) influential in her decision to study at Northwestern University.

(C) not as important at the time it happened as it is now, due to Hughes' fame.

(D) a great encouragement for Walker's confidence as a poet.

(E) important to her choice to study at New Orleans University.

4. The passage suggests that Walker's decision to become a poet

(A) occurred before she entered college.

(B) was primarily a result of her interaction with Hughes.

(C) was not surprising, given her upbringing.

(D) occurred after her transfer to Northwestern University.

(E) was sudden and immediately successful.

Questions 5–10 are based on the following passage.

Line F. Scott Fitzgerald was a prominent
American writer of the twentieth century.
This passage comes from one of his short
stories and tells the story of a young John
(5) Unger leaving home for boarding school.
      John T. Unger came from a family
that had been well known in Hades—a
small town on the Mississippi River—for
several generations. John's father had
(10) held the amateur golf championship
through many a heated contest; Mrs.
Unger was known "from hot-box to
hot-bed," as the local phrase went, for

her political addresses; and young John
(15) T. Unger, who had just turned sixteen,
had danced all the latest dances from
New York before he put on long trou-
sers. And now, for a certain time, he was
to be away from home.

(20)   That respect for a New England
education which is the bane of all
provincial places, which drains them
yearly of their most promising young
men, had seized upon his parents.

(25) Nothing would suit them but that he
should go to St. Midas's School near
Boston—Hades was too small to hold
their darling and gifted son. Now in
Hades—as you know if you ever have

(30) been there—the names of the more
fashionable preparatory schools and
colleges mean very little. The inhabitants
have been so long out of the world that,
though they make a show of keeping

(35) up-to-date in dress and manners and
literature, they depend to a great extent
on hearsay, and a function that in Hades
would be considered elaborate would
doubtless be hailed by a Chicago

(40) beef-princess as "perhaps a little tacky."

         John T. Unger was on the eve of
departure. Mrs. Unger, with maternal
fatuity, packed his trunks full of linen
suits and electric fans, and Mr. Unger

(45) presented his son with an asbestos
pocket-book stuffed with money.
"Remember, you are always welcome
here," he said. "You can be sure, boy,
that we'll keep the home fires burning."

(50)   "I know," answered John huskily.

         "Don't forget who you are and where
you come from," continued his father
proudly, "and you can do nothing to
harm you. You are an Unger—from

(55) Hades."

         So the old man and the young shook
hands, and John walked away with tears
streaming from his eyes. Ten minutes
later he had passed outside the city limits
(60) and he stopped to glance back for the last
time. Over the gates the old-fashioned
Victorian motto seemed strangely
attractive to him. His father had tried
time and time again to have it changed to
(65) something with a little more push and
verve about it, such as "Hades—Your
Opportunity," or else a plain "Welcome"
sign set over a hearty handshake pricked
out in electric lights. The old motto was a
(70) little depressing, Mr. Unger had
thought—but now ...

         So John took his look and then set
his face resolutely toward his destination.
And, as he turned away, the lights of
(75) Hades against the sky seemed full of a
warm and passionate beauty.

5. The tone of line 28 can best be described as

(A) compassionate.
(B) sincere.
(C) sardonic.
(D) dismayed.
(E) understated.

6. The "Chicago beef-princess" (lines 39–40)
can best be described as representing the
Chicago upper class by way of which
literary device?

(A) Anachronism
(B) Simile
(C) Apostrophe
(D) Metaphor
(E) Neologism

7. The phrase "maternal fatuity" (line 42–43), suggests that

- **(A)** John will not need linen suits and electric fans at St. Midas's.
- **(B)** John's mother packed frantically and ineffectively.
- **(C)** John's mother was excessively doting.
- **(D)** John resented his mother packing for him.
- **(E)** John never enjoyed linen suits or electric fans.

8. From the conversation between John and his father in paragraphs 3–6, it can be inferred that John feels

- **(A)** rejected and angry.
- **(B)** melancholic but composed.
- **(C)** impassive and indifferent.
- **(D)** resigned but filled with dread.
- **(E)** relieved but apprehensive.

9. John's meditation on the town's sign in paragraph 6 serves in the passage primarily to suggest a contrast between

- **(A)** John's love of Victorian things and his father's love of modern things.
- **(B)** his father's commercialism and John's sentimentality.
- **(C)** John's previous role as a part of the town and his new role as nostalgic outsider.
- **(D)** his father's naivety and John's pragmatism.
- **(E)** the old-fashioned atmosphere in the town before John's father influenced it and its current modernity.

10. The names Hades, St. Midas, and Unger suggest that the passage can be considered a(n)

- **(A)** epic poem.
- **(B)** euphemism.
- **(C)** aphorism.
- **(D)** satire.
- **(E)** allegory.

Questions 11–20 are based on the following passage.

This passage discusses the work of Abe Kobo, a Japanese novelist of the twentieth century.

Line   Abe Kobo is one of the great writers of postwar Japan. His literature is richer, less predictable, and wider-ranging than that of his famed contemporaries,

(5)   Mishima Yukio and Nobel laureate Oe Kenzaburo. It is infused with the passion and strangeness of his experiences in Manchuria, which was a Japanese colony on mainland China before World War II.

(10)   Abe spent his childhood and much of his youth in Manchuria, and, as a result, the orbit of his work would be far less controlled by the oppressive gravitational pull of the themes of *furusato* (home-

(15)   town) and the emperor than his contemporaries'.
     Abe, like most of the sons of Japanese families living in Manchuria, did return to Japan for schooling. He entered

(20)   medical school in Tokyo in 1944—just in time to forge himself a medical certificate claiming ill health; this allowed him to avoid fighting in the war that Japan was already losing and return to Manchuria.

(25)   When Japan lost the war, however, it also lost its Manchurian colony. The Japanese living there were attacked by the Soviet Army and various guerrilla bands. They

suddenly found themselves refugees,
(30) desperate for food. Many unfit men were abandoned in the Manchurian desert. At this apocalyptic time, Abe lost his father to cholera.

He returned to mainland Japan once
(35) more, where the young were turning to Marxism as a rejection of the militarism of the war. After a brief, unsuccessful stint at medical school, he became part of a Marxist group of avant-garde artists.
(40) His work at this time was passionate and outspoken on political matters, adopting black humor as its mode of critique. During this time, Abe worked in the genres of theater, music, and photogra-
(45) phy. Eventually, he mimeographed fifty copies of his first "published" literary work, entitled *Anonymous Poems*, in 1947. It was a politically charged set of poems dedicated to the memory of his
(50) father and friends who had died in Manchuria. Shortly thereafter, he published his first novel, *For a Signpost at the End of a Road*, which imagined another life for his best friend who had
(55) died in the Manchurian desert. Abe was also active in the Communist Party, organizing literary groups for working-men.

Unfortunately, most of this radical
(60) early work is unknown outside Japan and underappreciated even in Japan. In early 1962, Abe was dismissed from the Japanese Liberalist Party. Four months later, he published the work that would
(65) blind us to his earlier oeuvre, *Woman in the Dunes*. It was director Teshigahara Hiroshi's film adaptation of *Woman in the Dunes* that brought Abe's work to the international stage. The movie's fame
(70) has wrongly led readers to view the novel as Abe's masterpiece. It would be more accurate to say that the novel simply marked a turning point in his career, when Abe turned away from the experi-
(75) mental and heavily political work of his earlier career. Fortunately, he did not then turn to *furusato* and the emperor after all, but rather began a somewhat more realistic exploration of his continu-
(80) ing obsession with homelessness and alienation. Not completely a stranger to his earlier commitment to Marxism, Abe turned his attention, beginning in the sixties, to the effects on the individual of
(85) Japan's rapidly urbanizing, growth-driven, increasingly corporate society.

11. The word "infused" in line 6 most closely means

(A) illuminated.
(B) saturated.
(C) influenced.
(D) bewildered.
(E) nuanced.

12. The author refers to "the orbit" of Abe's work (lines 12–13) to emphasize that

(A) his work covers a wide range of themes.
(B) the emperor is often compared to a sun.
C. Abe's travels were the primary themes in his work.
D. Abe's work is so different from his contemporaries' that it is like another solar system.
(E) conventional themes can limit an author's individuality.

13. From the sentence beginning "He entered medical school. . . " in lines 19–24, it can be inferred that

(A) Abe entered medical school because he was sick.
(B) sick people were sent to Manchuria during World War II.
(C) Abe wanted to help the ill and injured in World War II, rather than fight.
(D) illness would excuse one from military duty in World War II Japan.
(E) Abe never intended to practice medicine.

14. The author uses the word "apocalyptic" to emphasize that

(A) Manchuria suffered intensely as a result of the use of nuclear weapons in World War II.
(B) Abe was deeply affected by the loss of his father.
(C) there was massive famine in Manchuria at the end of World War II.
(D) postwar Manchuria experienced exhilarating change.
(E) conditions in Manchuria after World War II were generally horrific.

15. The word "avant-garde" (line 39) could best be replaced by

(A) experimental.
(B) dramatic.
(C) novel.
(D) profound.
(E) realistic.

16. Which of the following does the passage present as a fact?

(A) Abe was a better playwright than novelist.
(B) Abe's early work was of greater quality than his later work.
(C) The group of avant-garde artists of which Abe was a part were influenced by Marxism.
(D) The themes of *furusato* and the emperor have precluded Japanese literature from playing a major role in world literature.
(E) Abe's work is richer than his contemporaries' because he included autobiographical elements.

17. The phrase "blind us" in lines 65–66 refers to the

(A) absence of film adaptations for Abe's other novels.
(B) excessive critical attention to Abe's novel, *Woman in the Dunes.*
(C) difficulty in reconciling *Woman in the Dunes* and other later works with the form and content of his earlier works.
(D) challenge of interpreting Abe's more experimental works.
(E) overwhelming power of Abe's novel, *Woman in the Dunes.*

18. The author's main purpose in the passage is to

    (A) defend Abe's later works against the prevalent criticism of it.

    (B) advocate for Abe's work over that of his contemporaries.

    (C) explain the differences between Abe's earlier and later works.

    (D) argue that Abe is an even greater writer and artist than generally perceived.

    (E) demonstrate that Abe's work became less interesting after he left Manchuria.

19. The author of the passage is most likely a

    (A) film critic.

    (B) literary critic.

    (C) avant-garde artist.

    (D) translator.

    (E) novelist.

20. The author's attitude toward Marxism can best be described as

    (A) contemptuous derision.

    (B) reverent espousal.

    (C) skeptical tolerance.

    (D) respectful interest.

    (E) restrained impatience.

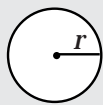**S T O P** Do not proceed to the next section until time is up.

Section 2

21 Questions ■ Time—25 Minutes

Directions: Solve the following problems using any available space on the page for scratchwork. Mark the letter of your choice on the answer sheet that best corresponds to the correct answer.

Notes:

1. You may use a calculator. All of the numbers used are real numbers.

2. You may use the figures that accompany the problems to help you find the solution. Unless the instructions say that a figure is not drawn to scale, assume that it has been drawn accurately. Each figure lies in a plane unless the instructions say otherwise.

Reference Information

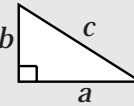$A = \pi r^2$
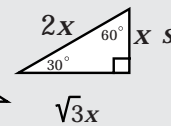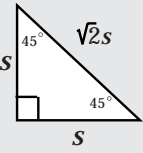$C = 2\pi r$ $A = \ell w$ $A = \dfrac{1}{2} bh$ $V = \ell wh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$ Special Right Triangles

The number of degrees of arc in a circle is 360.
The measure in degrees of a straight angle is 180.
The sum of the measures in degrees of the angles of a triangle is 180.
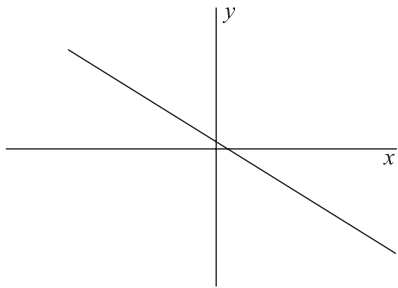
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1. What percentage of 75 is 12?

(A) 8%
(B) 12%
(C) 16%
(D) 18%
(E) 20%

2. If a circle is inscribed in a square of area 36, what is the area of the circle?
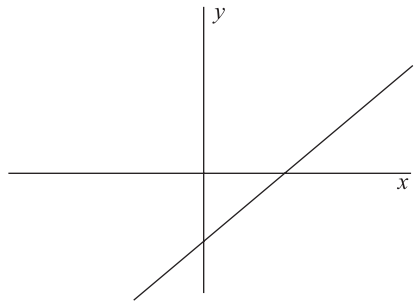
(A) 36π
(B) 24π
(C) 12π
(D) 9π
(E) 6π

3. Which of the following could have a slope of one?
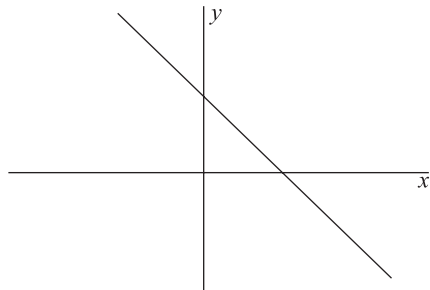
(A)

(B)

(C)
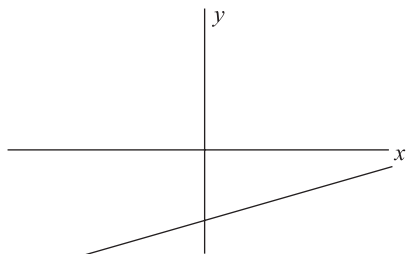
(D)

(E)
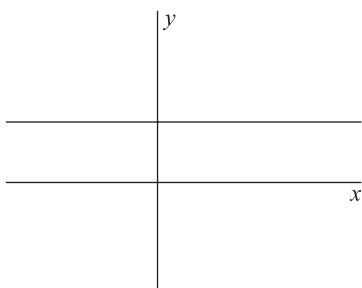
4. The first four terms of a series are 1, 4, 9, and 16. What is the eight term of this series?

(A) 49
(B) 56
(C) 64
(D) 72
(E) 81

5.
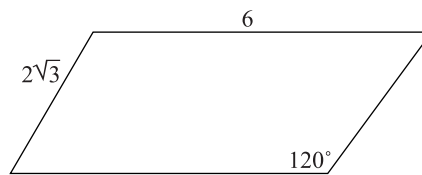
What is the area of the above parallelogram?

(A) 16
(B) 18
(C) 22
(D) 24
(E) 32

6. Which of the following fractions has the greatest reciprocal?

(A) $\dfrac{2}{9}$

(B) $\dfrac{4}{5}$

(C) $\dfrac{7}{3}$

(D) $\dfrac{2}{3}$

(E) $\dfrac{3}{13}$

7.
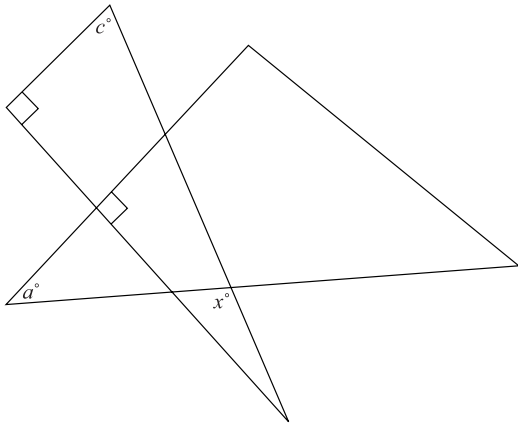
If $a = 60$ and $c = 50$ then $x =$

(A) 40
(B) 65
(C) 75
(D) 85
(E) 110

8. $\left[\left(2^2 + 2^2\right)^{-1}\right]^{-2} =$

(A) $\dfrac{1}{64}$

(B) $\dfrac{1}{16}$

(C) $\dfrac{1}{8}$

(D) 16

(E) 64

9.

Company A

Company B

$\square$ = 150,000 widgets

According to the chart above, Company B produced approximately how many more widgets than Company A?

(A) 75,000
(B) 150,000
(C) 225,000
(D) 300,000
(E) 375,000

10. If x^x is odd, and x is an integer, then the value of x must be

(A) odd.
(B) even.
(C) less than one.
(D) an irrational number.
(E) None of the above.

The following description applies to questions 11–13.

The factorial of a number is the product of all the integers from one to the number. For example, 5 factorial is $5 \times 4 \times 3 \times 2 \times 1$. The notation for a factorial is the number followed by an exclamation point.

Thus $5! = 5 \times 4 \times 3 \times 2 \times 1$.

11. $\dfrac{6!}{3!} =$

    (A) 2
    (B) 16
    (C) 30
    (D) 88
    (E) 120

12. If $f(x) = (x!)^2$ then $f(3) =$

    (A) 16
    (B) 36
    (C) 172
    (D) 1080
    (E) 6282

13. If $y + 2 = x$, and y and x are integers, then $\dfrac{y!}{x!} =$

    (A) $\dfrac{1}{(y+2)(y+1)}$
    (B) y
    (C) $\dfrac{1}{y^2}$
    (D) $\dfrac{y}{x}$
    (E) $y(y-1)$

14. If the determinant of this matrix is -6, what is the value of n?

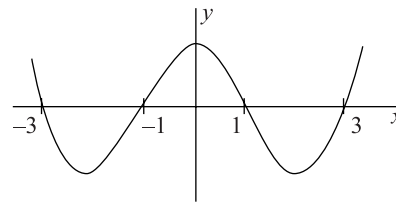$$\begin{pmatrix} n & 4 \\ 5 & -7 \end{pmatrix}$$

    (A) -2
    (B) $-5\dfrac{3}{5}$
    (C) -7
    (D) -8
    (E) $-8\dfrac{3}{4}$

15. If $p + q = 2q + 6$, which of the following statements must be true?

    I. p is even
    II. q is even
    III. pq is even

    (A) I only
    (B) II only
    (C) II and III only
    (D) I, II, and III
    (E) None

16.

For the above graph, for which values of x is $y > 0$?

    (A) $-3 < -1$ and $1 < x < 3$
    (B) $x < -3$ and $-1 < x < 1$ and $x > 3$
    (C) $x < -3$ and $1 < x < 3$ and $x > 3$
    (D) $x > 3$ and $x > -1$
    (E) $-3 > x > 3$
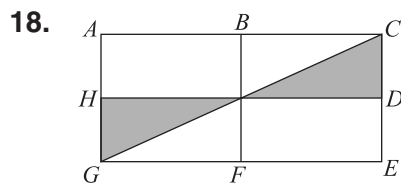
17.

| A | B | C | D | E |

The numbers from the number set {9, 11, 12, 15, 16} must be put in the above boxes according to these conditions:

Boxes A, C, and D contain numbers divisible by three.

Box B contains a prime number.

Which number must be in Box E?

(A) 9
(B) 11
(C) 12
(D) 15
(E) 16

18.

If, $\overline{AC} = 8$, $\overline{AB} = 4$, and D and H are midpoints on $\overline{CE}$ and $\overline{AG}$ respectively, what percentage of the rectangle is shaded?

(A) 12.5%
(B) 16.33%
(C) 20%
(D) 25%
(E) 30%

19. Raising $n^{\frac{-p}{n}}$ by which of the following will give the result n?

(A) $p^{\frac{-p}{n}}$

(B) $n^{\frac{n}{p}}$

(C) $\dfrac{p}{n}$

(D) $\dfrac{-n}{p}$

(E) $\dfrac{n + p}{p}$

20. If n is a positive integer and n, $n - 2$, and $n + 2$ are each prime numbers, then the set of those three numbers is called a prime triplet. How many different prime triplets are there where none of the set is greater than fifty?

(A) 1
(B) 2
(C) 3
(D) 4
(E) None.

21. If a circle has four tangents, each of which is perpendicular to two of the other tangents, then

(A) at most one pair of tangent lines is parallel.
(B) at most two pairs of tangent lines are parallel.
(C) all four tangent lines are parallel.
(D) a square is inscribed in the circle.
(E) one particular diameter could be perpendicular to all four tangent lines.

S T O P Do not proceed to the next section until time is up.

Section 3

30 Questions ■ Time—25 Minutes

Identifying Sentence Errors

Directions: Mark the letter of your choice on the answer sheet that best corresponds to the correct answer.

Notes:

1. The following questions test your knowledge of the rules of English grammar, as well as word usage, word choice, and idioms.

2. Some sentences are correct, but others contain a single error. No sentence contains more than one error.

3. Any errors that occur will be found in the underlined portion of the sentence. Choose the letter underneath the error to indicate the part of the sentence that must be changed.

4. If there is no error, pick answer choice (E).

5. There will be no change in any parts of the sentence that are not underlined.

1. Despite the enormous voter drive, there
   A   B
   are still many city-dwellers who are not
                              C
   registered to vote. No error
   D   E

2. Debating the energy bill was the first
   A
   order of business for the Senate; to set the
   B   C
   calendar for the upcoming session

   was to follow. No error (E)
   D   E

3. The FDA did not conclude that the
   A
   negative side affects of the drug offset the
   B   C
   drug's positive benefits. No error
   D   E

4. Over the last decade, the information
   A
   industry had grown into a multi-billion-
   B
   dollar industry that employs tens of
   C   D
   thousands of workers. No error
   E

5. Reading widely in her field, making herself
   _____   _____
        A   B
   available to students, and

   her sophisticated research paid off for
   _____ _____
                 C   D
   Professor Jackson: she was awarded

   tenure last year. No error
                     _____
                        E

6. One cannot perform multiple tasks

   simultaneously if one is easily distracted
   _____ ___ ___ _____
          A   B C   C
   by one's surroundings. No error
   _____ _____
             D   E

7. In many ways emblematic of the sweeping
                _____
                      A
   changes the state's agricultural industry
           _____
                 B
   has undergone, strawberry farming
   _____
         C
   had exploded in Central California.
   _____
         D
   No error
   _____
      E

8. Of Armigo's two films, most critics agree
   __   _____
   A   B
   that the second is best. No error
                   __ ____ _____
                    C D   E

9. Most people in the neighborhood

   agree that it is reasonable for the represen-
   _____   _____
       A   B
   tative to not acquiesce to the demands of
         _____ __
               C   D
   the transit authority. No error
                         _____
                            E

10. Although in many ways Canada is a
    _____
       A
    staunch ally of the United States,
    _____
        B
    they have made their differences
    _____
        C
    known on a number of important issues.
    _____
       D
    No error
    _____
       E

Improving Sentences

11. Her first novel having been published, the author began to take notes for her second.

 (A) Her first novel having been published
 (B) Having been her most recent novel published
 (C) Her first novel, having been published
 (D) When having had her first novel published
 (E) Having published her first novel

12. Van Gogh's early work has often been described as being in sharp contrast with his later work, despite there is a fundamental continuity between the two.

 (A) with his later work, despite
 (B) with his later work; despite the fact that
 (C) with his later work, rather,
 (D) with his later work, but
 (E) with his later work, notwithstanding

13. After working on his serve for several days, rumors circulated that the challenger would win the rematch.

 (A) After working on his serve for several days, rumors circulated that the challenger would win the rematch.
 (B) After working on his serve for several days, the challenger circulated rumors that he would win the rematch.
 (C) Rumors circulated that the challenger, after working on his serve for several days, would win the rematch.
 (D) After having worked on his serve for several days, the rematch was rumored to be won by the challenger.
 (E) After working on his serve for several days, rumors circulated, the challenger would win the rematch.

14. The artist thought that it was important both to portray the subject truthfully, no matter the difficulty, and revealing something new about the subject.

(A) and revealing something new about the subject.

(B) and so he revealed something new about the subject.

(C) and to reveal something new about the subject.

(D) having thereby revealed something new about the subject.

(E) and revealing something about the subject that is new.

15. Max Planck was not only one of the founders of quantum mechanics, but an accomplished pianist.

(A) mechanics, but an accomplished pianist.

(B) mechanics; but he was also an accomplished pianist.

(C) mechanics; and he was also an accomplished pianist.

(D) mechanics, and an accomplished pianist.

(E) mechanics, but also an accomplished piano.

16. Coffee shops, which were formerly found only in urban settings and near college campuses, have been expanding in the last few years outside these circumspect domains.

(A) which were formerly found only in urban settings and near college campuses

(B) being formerly found only in urban settings and near college campuses

(C) which have been found formerly only in urban settings and near college campuses

(D) which were formerly found only in urban settings or near college campuses

(E) that were formerly found only in urban settings and near college campuses

17. Until the Chin dynasty changed this practice, most Chinese intellectuals did not travel to the imperial court but remained in their native provincial centers.

(A) but remained in their native provincial centers.

(B) and remained in their native provincial centers.

(C) but rather they remained in the native provinces.

(D) yet they remained in their native provincial centers.

(E) but remained in the provinces to which they were native.

18. The artwork of the late Renaissance was characterized by a deep sympathy for the human subject, <u>often portraying human frailties and failings.</u>

(A) often portraying human frailties and failings.

(B) and it often portrayed human frailties and failings.

(C) human frailties and human failings being often portrayed.

(D) although it often portrayed human frailties and failings.

(E) though portraying human frailties and failings.

19. Pancho Villa's raid on Columbus, New Mexico, which was part of the tumult of the Mexican <u>revolution, therefore prompted a retaliatory expedition led by General Pershing.</u>

(A) revolution, therefore prompted a retaliatory expedition led by General Pershing.

(B) revolution, thereby prompting a retaliatory expedition led by General Pershing.

(C) revolution, had prompted General Pershing to lead a retaliatory expedition.

(D) revolution; a retaliatory expedition led by General Pershing thereby prompted.

(E) revolution, prompted a retaliatory expedition led by General Pershing.

20. Philology, the study of words, no longer exists in academia as a distinct discipline because <u>it has been subsumed under the study of linguistics.</u>

(A) it has been subsumed under the study of linguistics.

(B) it was subsumed in the past under the study of linguistics.

(C) it has been subsumed with the study of linguistics.

(D) linguistics previously having subsumed it.

(E) it had been subsumed under the study of linguistics.

Improving Paragraphs

Questions 21–25 are based on the following passage.

(1) An incredible hot-air balloon exhibition happened on September 5, 1862. (2) It was given by Glaisher and Coxwell, two Englishmen. (3) There was no compressed oxygen for them to breathe in those days. (4) They got so high that they couldn't use their limbs. (5) Coxwell had to open the descending valve with his teeth. (6) Before Glaisher passed out, he recorded an elevation of twenty-nine thousand feet. (7) Many believe they got eight thousand feet higher before they began to descend, making their ascent the highest in the nineteenth century.

    (8) Now the largest balloon to go up in the nineteenth century was "The Giant." (9) The balloon held 215,000 cubic feet of air and was 74 feet wide. (10) It could carry four and a half tons of cargo. (11) Its flight began in Paris, in 1853, with fifteen passengers. (12) All of whom returned safely. (13) The successful trip received a great deal of national and international press because many thought the hot-air balloon would become a form of common transportation.

21. Which of the following offers the best combination of sentences 1 and 2 (reproduced below)?

An incredible hot-air balloon exhibition happened on September 5, 1862. It was given by Glaisher and Coxwell, two Englishmen.

(A) An incredible hot-air balloon exhibition was given September 5, 1862 by Glaisher and Coxwell, two Englishmen.

(B) An incredibly hot-air balloon exhibition happened on September 5, 1862, given by Glaisher and Coxwell, two Englishmen.

(C) Given by Glaisher and Coxwell, two Englishmen, an incredible hot-air balloon exhibition happened on September 5, 1862.

(D) Glaisher and Coxwell, two Englishmen, gave an incredible hot-air balloon exhibition, happening on September 5, 1862.

(E) Two Englishmen, Glaisher and Coxwell, gave an incredible hot-air balloon exhibition on September 5, 1862.

22. Which of the following sentences in the first paragraph appears to be out of order?

(A) There was no compressed oxygen for them to breathe in those days.

(B) They got so high that they couldn't use their limbs.

(C) Coxwell had to open the descending valve with his teeth.

(D) Before Glaisher passed out, he recorded an elevation of 29 thousand feet.

(E) Many believe they got 8 thousand feet higher before they began to descend.

23. Which of the following is the best revision for sentence 8 (reproduced below)?

Now the largest balloon to go up in the nineteenth century was "The Giant."

(A) Move "in the nineteenth century" to the beginning of the sentence and delete "Now"

(B) Add a comma after "Now."

(C) Begin the sentence with "Moreover,"

(D) Delete "now."

(E) Replace "to go up" with "exhibition."

24. Which of the following is the best way to combine sentences 9 and 10 (reproduced below)?

The balloon held 215,000 cubic feet of air and was 74 feet wide. It could handle four and a half tons of cargo.

(A) The balloon held 215,000 cubic feet of air and was 74 feet wide, which could handle four and a half tons of cargo.

(B) The balloon held 215,000 cubic feet of air and was 74 feet wide, handling four and a half tons of cargo.

(C) The balloon held 215,000 cubic feet of air and was 74 feet wide; it could handle four and a half tons of cargo.

(D) The balloon held 215,000 cubic feet of air and was 74 feet wide, and it could handle four and a half tons of cargo.

(E) The balloon held 215,000 cubic feet of air and was 74 feet wide, but it could carry four and a half tons of cargo.

25. Which of the following is the best way to revise sentences 11 and 12 (reproduced below)?

Its flight began in Paris, in 1853, with fifteen passengers. All of whom returned safely.

(A) Replace "whom" with "who."

(B) Make the second sentence read "Who all returned safely."

(C) Delete "of"

(D) Replace the period at the end of sentence 11 with a comma.

(E) Delete the period at the end of sentence 11 and change "returned" to "returning"

Questions 26–30 are based on the following passage.

(1) On my nineteenth birthday, I began my trip to Mali, West Africa. (2) Some 24 hours later I arrived in Bamako, the capital of Mali. (3) The sun had set and the night was starless. (4) One of the officials from the literacy program I was working was there to meet me. (5) After the melee in the baggage claim, we proceeded to his car. (6) Actually, it was a truck. (7) I was soon to learn that most people in Mali that had automobiles actually had trucks or SUVs. (8) Apparently, there not just a convenience but a necessity when you live on the edge of the Sahara. (9) I threw my bags into the bed of the truck, and hopped in to the back of the cab. (10) Riding to my welcome dinner, I stared out the windows of the truck and took in the city. (11) It was truly a foreign land to me, and I knew that I was an alien there. (12) "What am I doing here?" I thought.

(13) It is hard to believe but seven months later I returned to the same airport along the same road that I had traveled on that first night in Bamako, and my perspective on the things that I saw had completely changed. (14) The landscape that had once seemed so desolate and lifeless now was the homeland of people that I had come to love. (15) When I looked back at the capital, Bamako, fast receding on the horizon, I did not see a city foreboding and wild in its foreignness. (16) I saw the city which held so many dear friends. (17) I saw tea-drinking sessions going late into the night. (18) I saw the hospitality and open-heartedness of the people of Mali. (19) The second time, everything looked completely different, and I knew that it was I who had changed and not it.

26. Which of the following is the revision of sentence 4 (reproduced below)?

One of the officials from the literacy program I was working was there to meet me.

(A) As it is now.
(B) One of the literacy program I was working's officials was there to meet me.
(C) There, was one of the officials from the literacy program I was working to meet me.
(D) One of the officials from the literacy program where I worked had been there to meet me.
(E) One of the officials from the literacy program where I would be working was there to meet me.

27. Which of the following is the best way to revise sentence 7 (reproduced below)?
I was soon to learn that most people in Mali that had automobiles actually had trucks or SUVs.

(A) Change "I was soon to learn" to "I was soon learning"
(B) Change "that had automobiles" to "who had automobiles"
(C) Replace "or" with "and"
(D) Add commas after "Mali" and "automobiles"
(E) Add an apostrophe to make "SUVs" read "SUV's"

28. Sentence 13 (reproduced below) would best be revised to which of the following choices?

It is hard to believe but seven months later I returned to the same airport along the same road that I had traveled on that first night in Bamako, and my perspective on the things that I saw had completely changed.

(A) As it is now.

(B) It is hard to believe, but seven months later I returned to the same airport along the same road that I had traveled on that first night in Bamako: my perspective on the things I saw had completely changed.

(C) It is hard to believe but seven months later I returned to the same airport along the same road that I had traveled on that first night in Bamako, and my perspective completely changed on the things I saw.

(D) It is hard to believe, but seven months later, when I returned to the same airport along the same road that I had traveled on that first night in Bamako, my perspective on the things I saw had completely changed.

(E) It is hard to believe, but seven months later I returned to the same airport along the same road that I had traveled on that first night in Bamako, and my perspective on the things that I saw having completely changed.

29. If you were to combine sentences 16–18 (reproduced below) into one sentence, which of the following would be the best choice?

I saw the city which held so many dear friends. I saw tea-drinking sessions going late into the night. I saw the hospitality and open-heartedness of the people of Mali.

(A) I saw the city which held so many dear friends; I saw tea-drinking sessions going late into the night; I saw the hospitality and open-heartedness of the people of Mali.

(B) I saw the city which held so many dear friends, drinking tea into late in the night, and the hospitality and open-heartedness of the people of Mali.

(C) I saw the city which held so many dear friends, I saw tea-drinking sessions going late into the night, I saw the hospitality and open-heartedness of the people of Mali.

(D) I saw the city which held so many dear friends, tea-drinking sessions going late into the night, the hospitality and open-heartedness of the people of Mali.

(E) I saw the city which held so many dear friends: tea-drinking sessions going late into the night, the hospitality and open-heartedness of the people of Mali.

30. Which of the following must be done to sentence 8 (reproduced below) to make it conform to the rules of written English?

Apparently, there not just a convenience but a necessity when you live on the edge of the Sahara.

(A) Eliminate the comma after "Apparently"

(B) Change "there" to "they are"

(C) Add commas after "convenience" and "necessity"

(D) Change "you live" to "one lives"

(E) Add "Desert" after "Sahara"

S T O P Do not proceed to the next section until time is up.

Section 4

27 Questions ■ Time—25 Minutes

Directions: Each sentence below has either one or two blanks in it and is followed by five choices, labeled (A) through (E). These choices represent words or phrases that have been left out. Choose the word or phrase that, if inserted into the sentence, would best fit the meaning of the sentence as a whole.

Example:

Canine massage is a veterinary technique for calming dogs that are extremely _____.

(A) inept
(B) disciplined
(C) controlled
(D) stressed
(E) restrained

Ⓐ Ⓑ Ⓒ ● Ⓔ

1. The professor's oldest colleague was selected to give the _____ at the funeral.

   (A) eulogy
   (B) elegy
   (C) epigraph
   (D) eponymy
   (E) epitaph

2. The new team member's _____ was an encouragement to the rest of the team, who had become _____ by the string of defeats.

   (A) enthusiasm. .elated
   (B) vigor. .inundated
   (C) ebullience. .dispirited
   (D) dourness. .undone
   (E) excessiveness. .downcast

3. By the end of the campaign both candidates had resorted to _____ the other.

(A) commending
(B) denigrating
(C) mollifying
(D) conceding
(E) swindling

4. The cat _____ crept across the lawn, gracefully _____ the dog.

(A) felicitously..enticing
(B) swiftly..defeating
(C) acrobatically..apprehending
(D) maladroitly..undermining
(E) deftly..eluding

5. The storyteller's _____ anecdotes earned her the _____ attention of the crowd.

(A) compelling..rapt
(B) pointed..spellbound
(C) moribund..lucid
(D) poignant..abrasive
(E) meandering..distracted

6. The bill became bogged down in a(n) _____ of contentious issues in a Senate subcommittee.

(A) marsh
(B) sequence
(C) iota
(D) conundrum
(E) quagmire

7. The outcome of the race seemed _____ before the leader's misstep on the final leg gave her competitors a(n) _____ of winning the title.

(A) dubious..prospect
(B) inevitable..hope
(C) indubitable..air
(D) assured..expectation
(E) partial..endeavor

8. Though the new pharmaceutical regime was intended to be beneficial, its actual effect was _____, a result the medical community _____.

(A) harmful..heralded
(B) abundant..castigated
(C) fortuitous..ignored
(D) detrimental..lamented
(E) negative..projected

9. The life of the lightening bug is _____ to human eyes: They live only twenty-four hours.

(A) ludicrous
(B) ephemeral
(C) epic
(D) ecstatic
(E) incandescent

10. The kangaroo species _____ in the new environment where there was an abundant supply of food and a(n) _____ of predators.

(A) stagnated..excess
(B) bolstered..paucity
(C) exploded..abundance
(D) flagged..absence
(E) flourished..dearth

11. With her speech, the politician attempted to _____ the fears of the _____ citizens.

(A) intensify..disingenuous
(B) ignore..alarmed
(C) assuage..concerned
(D) quell..disaffected
(E) exploit..serene

12. The fencing champion was _____ with her rapier, but in most other sports she was rather _____.

(A) adroit..awkward
(B) adept..lithe
(C) tenacious..passable
(D) incompetent..clumsy
(E) deft..skillful

13. Jane Goodall was at first a(n) _____ in her field, but since then she has received many accolades for her work.

(A) acolyte
(B) maverick
(C) luminary
(D) charlatan
(E) miser

14. Alston was impressed by the philosopher's lecture, but Mario thought the lecture was better characterized as _____ than as erudite.

(A) translucent
(B) recondite
(C) impeccable
(D) specious
(E) fictitious

15. The senior official _____ at the insinuation that his country's international trade policies were directly _____ the region's economic woes.

(A) balked..responsible for
(B) wrinkled..at fault for
(C) staggered..inhibiting
(D) blundered..implicated in
(E) riled..accountable to

Questions 16–27 are based on the following passage.

The following passage was written by John Janovec, an ecologist who has worked in the Los Amigos watershed in Peru.

Line   The Amazonian wilderness harbors the greatest number of species on this planet and is an irreplaceable resource for present and future generations. Amazo-

(5)   nia is crucial for maintaining global climate and genetic resources, and its forest and rivers provide vital sources of food, building materials, pharmaceuti-cals, and water needed by wildlife and

(10)   humanity.

       The Los Amigos watershed in the state of Madre de Dios, southeastern Peru, is representative of the pristine lowland moist forest once found

(15)   throughout most of upper Amazonian South America. Threats to tropical forests occur in the form of fishing, hunting, gold mining, timber extraction, impending road construction, and

(20)   slash-and-burn agriculture. The Los Amigos watershed, consisting of 1.6 million hectares (3.95 million acres), still offers the increasingly scarce opportunity to study rainforest as it was before the

(25)   disruptive encroachment of modern human civilization. Because of its

relatively pristine condition and the immediate need to justify it as a conservation zone, this area deserves intensive, long-term projects aimed at botanical training, ecotourism, biological inventory, and information synthesis.

(30)

On July 24, 2001, the government of Peru and the Amazon Conservation Association signed a contractual agreement creating the first long-term permanently renewable conservation concession. To our knowledge this is the first such agreement to be implemented in the world. The conservation concession protects 340,000 acres of old-growth Amazonian forest in the Los Amigos watershed, which is located in southeastern Peru. This watershed protects the eastern flank of Manu National Park and is part of the lowland forest corridor that links it to Bahuaja-Sonene National Park. The Los Amigos conservation concession will serve as a mechanism for the development of a regional center of excellence in natural forest management and biodiversity science.

(35)

(40)

(45)

(50)

Several major projects are being implemented at the Los Amigos Conservation Area. Louise Emmons is initiating studies of mammal diversity and ecology in the Los Amigos area. Other projects involve studies of the diversity of arthropods, amphibians, reptiles, and birds. Robin Foster has conducted botanical studies at Los Amigos, resulting in the labeling of hundreds of plant species along two kilometers of trail in upland and lowland forest. Michael Goulding is leading a fisheries and aquatic ecology program, which aims to document the diversity of fish, their ecologies, and their habitats in the Los

(55)

(60)

(65)

Amigos area and the Madre de Dios watershed in general.

(70)

With support from the Amazon Conservation Association, and in collaboration with U.S. and Peruvian colleagues, the Botany of the Los Amigos project has been initiated. At Los Amigos, we are attempting to develop a system of preservation, sustainability, and scientific research; a marriage between various disciplines, from human ecology to economic botany, product marketing to forest management. The complexity of the ecosystem will best be understood through a multidisciplinary approach, and improved understanding of the complexity will lead to better management. The future of these forests will depend on sustainable management and development of alternative practices and products that do not require irreversible destruction.

(75)

(80)

(85)

(90)

The botanical project will provide a foundation of information that is essential to other programs at Los Amigos. By combining botanical studies with fisheries and mammology, we will better understand plant/animal interactions. By providing names, the botanical program will facilitate accurate communication about plants and the animals that use them. Included in this scenario are humans, as we will dedicate time to people-plant interactions in order to learn what plants are used by people in the Los Amigos area, and what plants could potentially be used by people.

(95)

(100)

(105)

To be informed, we must develop knowledge. To develop knowledge, we must collect, organize, and disseminate information. In this sense, botanical information has conservation value. Before we can use plant-based products

(110)

from the forest, we must know what species are useful and we must know their names. We must be able to identify
(115) them, to know where they occur in the forest, how many of them exist, how they are pollinated and when they produce fruit (or other useful products). Aside from understanding the species as they
(120) occur locally at Los Amigos, we must have information about their overall distribution in tropical America in order to better understand and manage the distribution, variation, and viability of
(125) their genetic diversity. This involves a more complete understanding of the species through studies in the field and herbarium.

16. In line 6, "genetic resources" refers to

(A) plant seeds.
(B) different races of people.
(C) natural resources, such as oil.
(D) diverse species of plants and animals.
(E) cells that can be used in genetic cures for diseases.

17. In paragraph 2, the author emphasizes that the current environmental condition of Amazonian South America is

(A) mostly unscathed.
(B) largely unknown.
(C) restorable through his project.
(D) irredeemable everywhere but in the Los Amigos watershed.
(E) varying from destroyed to virtually pristine.

18. In line 40, "concession" could be replaced, without changing the meaning, with

(A) grant.
(B) acknowledgement.
(C) food supply.
(D) apology.
(E) compromise.

19. The author implies in paragraph 3 that the agreement between Peru and the Amazon Conservation Association is historic primarily because it

(A) was the first time a South American government had made an agreement of any kind with the Amazon Conservation Association.
(B) was the first long-term agreement regarding land in the Amazon Rainforest.
(C) represented the first time a South American government had agreed to renew a conservation agreement.
(D) is essentially a permanent conservation agreement.
(E) represents the first time such an agreement had been made in the form of a renewable contract.

20. The author's main purpose in the passage is to

(A) demonstrate that conservation efforts have been historically successful and so should be continued.

(B) garner support for opposition to destructive activities in the Los Amigos watershed.

(C) position the Los Amigos watershed agreement as a success towards the achievement of the vital goal of conserving the Amazonian rainforests.

(D) uphold the Peruvian government's progressive policies on management of the Los Amigos watershed as an example of government policy working toward conservation.

(E) argue that the study of pristine rainforests is essential for documenting and studying the myriad new species that the forests contain.

21. The author's tone in the passage can best be described as

(A) advocacy for his project over other competing projects.

(B) general praise for conservation projects in Amazonian South America.

(C) condemnation for the government of Peru for allowing destruction of the rainforest.

(D) passionate support for his and related projects.

(E) zealous advocacy for his point of view.

22. The work of Louise Emmons, Robin Foster, and Michael Goulding (in the fourth paragraph) are employed in the passage as

(A) colleagues of the author's in his botanical project.

(B) examples of the kinds of activities the author and his colleagues are trying to halt.

(C) examples of the influence of international scientists in Peru.

(D) scientists who represent new trends of study in Amazonian botany.

(E) scientists involved in projects related and amenable to the author's.

23. The author's botanical project involves all of the following EXCEPT

(A) studying plants in a laboratory.

(B) studying how plants are used by humans and animals.

(C) facilitating pharmaceutical use of plants.

(D) providing information on how to keep plant species flourishing.

(E) labeling plants in the Los Amigos area.

24. When the author says that the botanical project will "provide names," (line 97–100) he means that the project will

(A) help recognize new species.
(B) aid in the standardization of names for new species.
(C) participate in naming the region's different zones.
(D) publish information for corporations and researchers regarding the most appropriate names for specific plants.
(E) clarify the confusion surrounding the names of different organizations working in Amazonia.

25. When the author says that, "botanical information has conservation value," (lines 109–110) he means that

(A) a robust understanding of conservationism is aided by botanical information.
(B) conservationists should strive to preserve botanical information.
(C) speciation is important for conservation.
(D) political discussions about conservation should use botanical nomenclature.
(E) new drugs will be developed in the regions protected by conservationism.

26. Which of the following issues does the passage NOT address?

(A) Positive contributions of scientific research for conservation efforts
(B) Pollution of water sources in Amazonian Peru
(C) Economic importance of conserving the Amazon rainforests
(D) Specific efforts of the Peruvian government to maintain the integrity of Peruvian rainforests
(E) Examples of previous scientific research in Los Amigos

27. The author mentions areas outside the Los Amigos watershed primarily in order to

(A) imply that his future research will focus on these areas.
(B) draw a comparison between work in those areas and work in the Los Amigos area.
(C) underscore the interrelatedness of the ecosystems.
(D) emphasize that Los Amigos is the most pristine locale.
(E) praise the Peruvian government for its other conservationist undertakings.

S T O P Do not proceed to the next section until time is up.

Section 5

21 Questions ■ Time—25 Minutes

Directions: Solve the following problems using any available space on the page for scratchwork. Mark the letter of your choice on the answer sheet that best corresponds to the correct answer.

Notes:

1. You may use a calculator. All of the numbers used are real numbers.

2. You may use the figures that accompany the problems to help you find the solution. Unless the instructions say that a figure is not drawn to scale, assume that it has been drawn accurately. Each figure lies in a plane unless the instructions say otherwise.

Reference Information

$A = \pi r^2$
$C = 2\pi r$ $A = \ell w$ $A = \dfrac{1}{2} bh$ $V = \ell wh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$ Special Right Triangles

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

1. Consider two sets of numbers: Set A includes all the positive integers and Set B includes all the negative integers. Which set has more members?

   (A) A
   (B) B
   (C) They contain an equal number.
   (D) Neither.
   (E) It cannot be determined.

2. If four sweaters cost p dollars, and the sweaters go on a half-off sale, how much would 12 sweaters cost in dollars?

   (A) $\dfrac{p}{2}$

   (B) $\dfrac{3p}{2}$

   (C) $2p$

   (D) $4p$

   (E) $6p$

3. $\dfrac{\frac{2}{3}}{\frac{4}{5}} =$

(A) $\dfrac{1}{3}$

(B) $\dfrac{8}{15}$

(C) $\dfrac{5}{6}$

(D) $\dfrac{15}{8}$

(E) $\dfrac{6}{5}$

4. If $3y = x$ and $y = \dfrac{10}{z}$, what is the value of z when $x = 3$?

(A) 1
(B) 3
(C) 5
(D) 7
(E) 10

5. If $y = mx + b$ where m is a negative constant and b is a positive constant, which of the following could be a possible graph of $y = mx + b$?
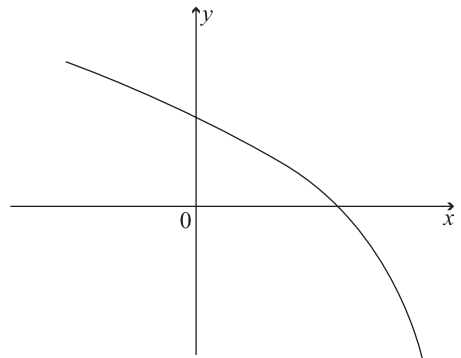
(A)
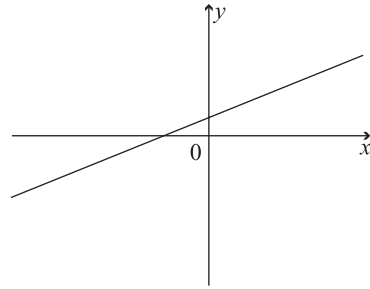
(B)
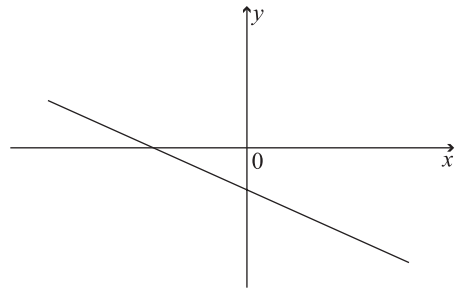
(C)
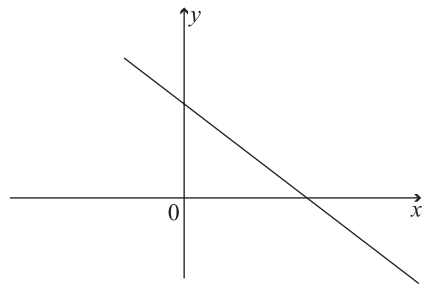
(D)

6.

	Small (S)	Medium (M)	Large (L)
Hats (H)	$8	$12	$12
Shirts (SH)	$12	$12	$14

Hat & Shirt Prices at Moe's

If Moe's has a 25% off sale on medium-sized items, how much would it cost, in dollars, to order 2 H-M, 2 H-L, and 1SH-M?

(A) 51
(B) 53
(C) 55
(D) 56
(E) 58

7. If $5\sqrt{x} + 15 = 30$, then $x =$

(A) 9
(B) 10
(C) 12
(D) 14
(E) 15

8. $\dfrac{x^2 - x - 12}{2x^2 + 2x - 12} =$

(A) $\dfrac{x-2}{x-4}$

(B) $\dfrac{3(x-2)}{x-4}$

(C) $\dfrac{4(x-3)}{x-2}$

(D) $\dfrac{x-4}{2(x-2)}$

(E) $\dfrac{4(x-3)}{3(x-2)}$

9. If $f(x) = x^2$ is graphed on a standard xy-axis and then the graph is rotated 90° clockwise, which of the following graphs would result?

(A)

(B)

(C)

(D)

(E)
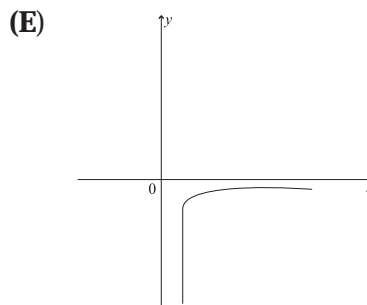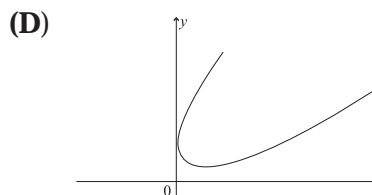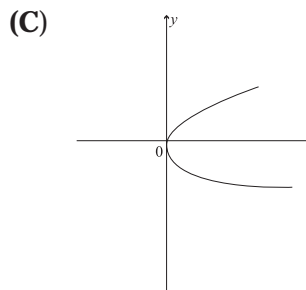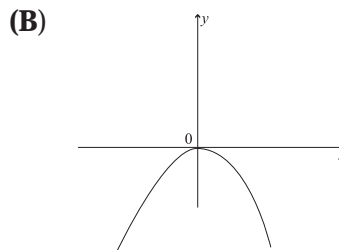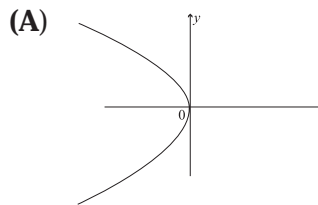
10. For which of the following ordered pairs (x,y) is $x - y > 2$ and $x + y > 4$?

(A) (1,3)
(B) (2,3)
(C) (4,0)
(D) (3,2)
(E) (4,1)

11. If x and y are positive integers and $\dfrac{x}{y} = \dfrac{1}{2}$, then $x + y =$

(A) $3x$
(B) $5x$
(C) y
(D) $2y$
(E) $3y$

12. Quentin buys three hot dogs with a ten-dollar bill and receives seven dollars and thirty-four cents in change. If the sales tax is seven cents per dollar (rounding to the nearest penny), which of the following choices, in cents, is closest to the actual price of a hot dog?

(A) 78
(B) 82
(C) 86
(D) 89
(E) 92

13.
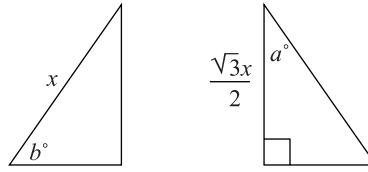
If the two triangles above are congruent then $b =$

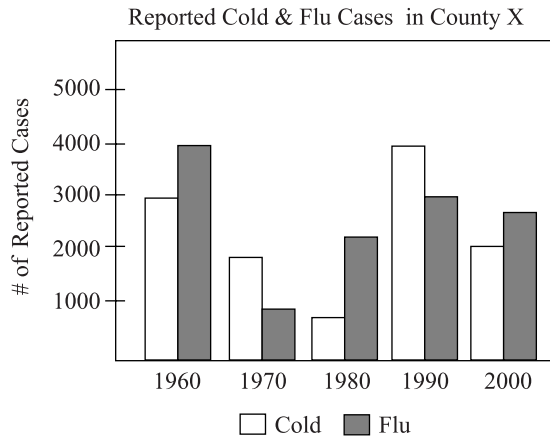(A) 30
(B) 40
(C) 45
(D) 60
(E) It cannot be determined.

14.
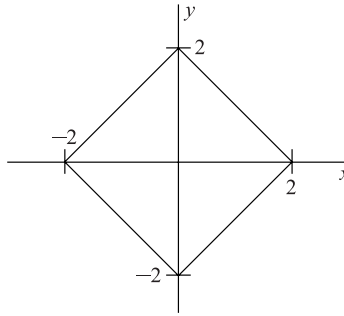
What is the area of the above figure?

(A) $2\sqrt{2}$
(B) 4
(C) 8
(D) 9
(E) 12

Questions 15–16 refer to the following chart.

Reported Cold & Flu Cases in County X

15. Which year had the least percentage difference in reported incidence of flu and cold?

(A) 1960
(B) 1970
(C) 1980
(D) 1990
(E) 2000

16. In percentage terms, in what decade was the number of reported cold cases about 25% greater than the number of reported flu cases?

(A) 1960
(B) 1970
(C) 1980
(D) 1990
(E) 2000

17. If $l_1 \| l_2$, then which of the following pairs of angles must be congruent?
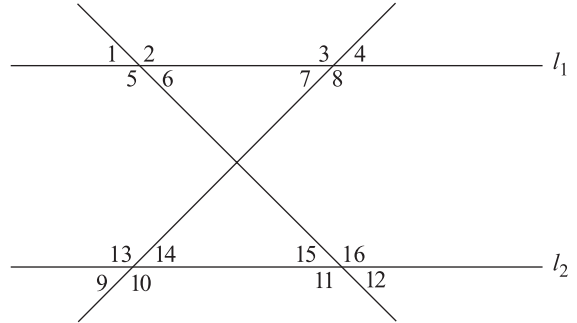
I. 6 and 12
II. 2 and 9
III. 4 and 10

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

18. If $-a^{-b^{-c}}$ is a positive integer, and a, b, and c are integers, then

(A) a must be negative.
(B) b must be negative.
(C) c must be negative.
(D) b must be an even positive integer.
(E) None of the above.

19.
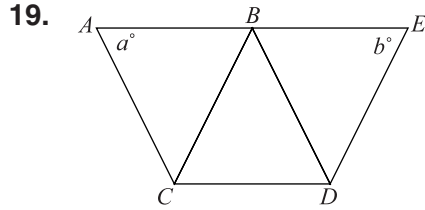
Note: Figure not Drawn to Scale

If all the line segments in the above figure are congruent, then

(A) $a > b$
(B) $a < b$
(C) $2a = b$
(D) $a = b$
(E) It cannot be determined.

20. Two boys and two girls are assigned to sit at a five-seat circular table, where the seats are numbered one through five. If neither boy can sit by the open seat, seat 3, how many different seating arrangements are possible?

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

21. There are 150 students in math courses at Dagmar High School. 73 are in geometry, 62 are in algebra, and 52 are in neither. How many students are in both geometry and algebra?

(A) 32
(B) 33
(C) 35
(D) 36
(E) 37

S T O P Do not proceed to the next section until time is up.

Section 6

16 Questions ■ Time—20 Minutes

Directions: Each passage below is followed by a set of questions. Read each passage, then answer the accompanying questions, basing your answers on what is stated or implied in the passage and any introductory material provided. Mark the letter of your choice on the answer sheet that best corresponds to the correct answer.

Line   In 1953, Watson and Crick unlocked the
        structure of the DNA molecule and set
        into motion the modern study of genetics.
        This advance allowed our study of life to
(5)   go beyond the so-called wet and dirty
        realm of biology, the complicated labora-
        tory study of proteins, cells, organelles,
        ions, and lipids. The study of life could
        now be performed with more abstract
(10)   methods of analysis. By discovering the
        basic structure of DNA, we had received
        our first glance into the information-based
        realm locked inside the genetic code.

1. Which of the following does the passage
   discuss as a change that the discovery of
   DNA brought to the study of life?
   (A) The study of lipids and proteins
       became irrelevant.
   (B) New and more abstract methods of
       study were possible.
   (C) Biology could then focus on mol-
       ecules rather than cells.
   (D) Modern genetics matured past its
       Mendelian roots.
   (E) Information-based study of genes
       became obsolete.

2. The passage uses the phrase "wet and
   dirty" (line 5) to mean
   (A) haphazard guessing about the genetic
       code.
   (B) the work of Watson and Crick in
       discovering DNA.
   (C) information-based biological
       research.
   (D) the study of the genetic code.
   (E) involved laboratory practices in
       studying basic biological entities.

Although little-known today in the United States, Clark Saunders (1859–1941) cast a large shadow in the first several decades of the twentieth century, writing many widely read books on Native American, Spanish, and Anglo folklore. He also wrote extensively on the different cultures of California, the Sierras, and the Southwest. He was a major and influential contributor to *Sunset Magazine* in its early years. In his day, Saunders was important for introducing much of the American public to a person-sized understanding of the "Old West."

3. The passage presents Saunders as a(n)

(A) influential contemporary western writer.

(B) important historian of the West.

(C) a specialist of Native American studies.

(D) widely read author in his own day.

(E) the first editor of *Sunset Magazine*.

The history of rock and roll is inseparable from the development of blues and gospel music in the southeastern United States. Though the genre gained mass appeal through legendary figures such as Elvis Presley or the wildly popular Beatles, the musical roots of rock and roll extend far before such groups. In fact, many of the groups who popularized rock and roll were consciously attempting to emulate the work of blues greats such as B. B. King or Muddy Waters. The Rolling Stones are a good example of this trend, which developed in the late fifties and early sixties. The Rolling Stones, both then and now, have always explicitly stated their admiration and imitation of blues greats.

4. B. B. King is used in this passage as an example of a

(A) blues artist who was emulated by early rock bands.

(B) musical artist influenced by Elvis Presley.

(C) musician who incorporated aspects of rock and roll.

(D) musician who often played with Muddy Waters.

(E) gospel singer who influenced the Rolling Stones.

The following two passages deal with the political movements working for the woman's vote in America.

Passage 1

Line   The first organized assertion of woman's rights in the United States was made at the Seneca Falls convention in 1848. The convention, though, had little immediate
(5)   impact because of the national issues that would soon embroil the country. The contentious debates involving slavery and state's rights that preceded the Civil War soon took center stage in national debates.
(10)   Thus woman's rights issues would have to wait until the war and its antecedent problems had been addressed before they would be addressed.
         In 1869, two organizations were
(15)   formed that would play important roles in securing the woman's right to vote. The first was the American Woman's Suffrage Association (AWSA). Leaving federal and constitutional issues aside, the AWSA
(20)   focused their attention on state-level politics. They also restricted their ambitions to securing the woman's vote and downplayed discussion of women's full equality. Taking a different track, the
(25)   National Woman's Suffrage Association (NWSA), led by Elizabeth Stanton and Susan B. Anthony, believed that the only way to assure the long-term security of the woman's vote was to ground it in the
(30)   constitution. The NWSA challenged the exclusion of woman from the Fifteenth Amendment, the amendment that extended the vote to African-American men. Furthermore, the NWSA linked the
(35)   fight for suffrage with other inequalities faced by woman, such as marriage laws, which greatly disadvantaged women.

By the late 1880s the differences that separated the two organizations had
(40) receded in importance as the women's movement had become a substantial and broad-based political force in the country. In 1890, the two organizations joined forces under the title of the National
(45) American Woman's Suffrage Association (NAWSA). The NAWSA would go on to play a vital role in the further fight to achieve the woman's vote.

Passage 2

In 1920, when Tennessee became the
(50) thirty-eighth state to approve the constitutional amendment securing the woman's right to vote, woman's suffrage became enshrined in the constitution. But woman's suffrage did not happen in one fell
(55) swoop. The success of the woman's suffrage movement was the story of a number of partial victories that led to the explicit endorsement of the woman's right to vote in the constitution.
(60) As early as the 1870s and 1880s, women had begun to win the right to vote in local affairs such as municipal elections, school board elections, or prohibition measures. These "partial suffrages"
(65) demonstrated that women could in fact responsibly and reasonably participate in a representative democracy (at least as voters). Once such successes were achieved and maintained over a period of
(70) time, restricting the full voting rights of woman became more and more suspect. If women were helping decide who was on the local school board, why should they not also have a voice in deciding who was
(75) president of the country? Such questions became more difficult for non-suffragists to answer, and thus the logic of restricting the woman's vote began to crumble.

5. The word "antecedent" in line 11 can best be replaced by

   (A) antebellum.
   (B) referent.
   (C) causal.
   (D) subsequent.
   (E) abolitionist.

6. Which of the following does the first passage say was the first organized push for woman's suffrage?

   (A) formation of the National Woman's Suffrage Association
   (B) formation of the American Woman's Suffrage Association
   (C) convening of the Seneca Falls convention
   (D) Tennessee passing the Twenty-Second Amendment
   (E) "partial suffrages" of local woman's suffrage efforts

7. What national event does the first passage cite as pushing woman's voting rights to the background of the national consciousness?

   (A) Civil War
   (B) Suffrage movement
   (C) Prohibition
   (D) Passage of the Fifteenth Amendment
   (E) World War I

8. According to the first passage, the National Woman's Suffrage Association focused their efforts on

   (A) local elections.
   (B) constitutional issues.
   (C) prohibition efforts.
   (D) school board elections.
   (E) state elections.

9. The differences between the AWSA and the NWSA were ultimately resolved when

(A) the Twenty-Second Amendment passed.
(B) the two organizations were combined to form the NAWSA.
(C) the Civil War ended.
(D) prohibition passed.
(E) woman's suffragists won significant victories in the 1890 general election.

10. In Passage 1, the author's attitude toward the subject matter is

(A) intense scrutiny.
(B) distanced suspicion.
(C) mild censure.
(D) appreciative description.
(E) enthusiastic support.

11. Passage 2 locates the ultimate victory of the woman's suffrage movement with which of the following events?

(A) Tennessee approving the woman's voting rights amendment
(B) Congress passing the Twenty-Second Amendment
(C) The combination of AWSA and NWSA into NAWSA
(D) Woman earning the full vote in Wyoming
(E) Women's fruitful participation in local elections

12. When is the earliest success of the woman's suffrage movement that the second passage points to?

(A) 1848
(B) 1869
(C) 1870s
(D) 1880s
(E) 1920

13. Which of the following is NOT an example of a "partial suffrage" as described in the second passage?

(A) A mayoral election
(B) A school board measure
(C) Passage of the Fifteenth Amendment
(D) A state prohibition referendum
(E) Impeaching a city council member

14. The author of the second passage argues that the "partial suffrages" were most effective in bringing full voting rights for woman because

(A) through them woman were able to elect prosuffrage representatives.
(B) they showed women voting ably.
(C) they demonstrated that woman could participate in a full democracy.
(D) they demonstrated that woman could handle the intricacies of foreign policy.
(E) they established the power of the woman voter.

15. Which of the following questions is NOT addressed in either passage?

(A) When did the woman's right to vote become a constitutional amendment?

(B) What effect did the Civil War have on the woman's suffrage movement?

(C) What are the names of two leaders of the National Woman's Suffrage Association?

(D) What are "partial suffrages?"

(E) Which constitutional amendment gave women the vote?

16. The author of the second passage would most likely see the work of the

(A) AWSA as crucial for the ultimate success of the suffrage movement.

(B) NWSA as indispensable for "partial suffrages."

(C) NWSA as unimportant for the passage of the woman's voting rights amendment.

(D) Seneca Falls convention as the most important single event in the women's suffrage movement.

(E) the NAWSA as important for the unity of the woman's suffrage movement.

S T O P   Do not proceed to the next section until time is up.

Section 7

13 Questions ■ Time—20 Minutes

Notes:

1. All numbers used are real numbers.

2. All angle measurements can be assumed to be positive unless otherwise noted.

3. All figures lie in the same plane unless otherwise noted.

4. Drawings that accompany questions are intended to provide information useful in answering the question. The figures are drawn closely to scale unless otherwise noted.

Directions for Student Produced Responses

Enter your responses to questions 1–13 in the special grids provided on your answer sheet. Input your answers as indicated in the directions below.

Answer: $\frac{4}{9}$ or 4/9

Write answer → in boxes.

← Fraction line

Grid in → result.

Answer: 1.4
Either position is correct.

Decimal → point

Note: You may begin your answer in any column, space permitting. Leave blank any columns not needed.

- Writing your answer in the boxes at the top of the columns will help you accurately grid your answer, but it is not required. **You will only receive credit for an answer if the ovals are filled in properly.**

- Only fill in one oval in each column.

- If a problem has several correct answers, just grid in one of them.

- There are no negative answers.

- **Never grid in mixed numbers.** The answer $3\frac{1}{5}$ must be gridded as 16/5 or 3.2. If

is gridded, it will be read as $\frac{31}{5}$, not $3\frac{1}{5}$.

Decimal Accuracy

Decimal answers must be gridded as accurately as possible. The answer 0.3333 . . . must be gridded as .333.

Less accurate values, such as .33 are not acceptable.

Acceptable ways to grid $\frac{1}{3} = .3333$ . . .

---

1. $[2(3^2)^2 + (4 - 3(4))^2] =$

2. Given that $22 - 3x > 13$, what is a positive integer that is less than x?

3. A phone company charges 40 cents for a completed long-distance phone call and 6 cents per minute on top of the initial fee. How much, in dollars, would a 30-minute long-distance phone call cost?

4. What is the least common multiple of 18 and 24?

5. If $|x - 3| > 2$, then what is one integer value that x cannot equal?

6. If the kth term in a series is generated by the equation $n = \dfrac{10(k + 1)}{k - 1}$, what is the eleventh term in the series?

7. Given $P(3, 2)$ and $Q(3, 6)$, what is the y-coordinate of the midpoint of the line segment defined by these two points?

8.
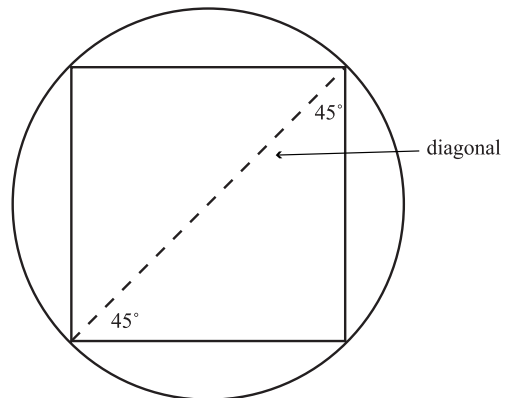
What is the length of the hypotenuse?

9. What is the difference between the mean and the median of the number set {7, 4, 3, 6, 2, 2}?

10. If line a and line b are perpendicular, line b and line c are perpendicular, and the slope of line a is $\frac{2}{5}$, what is the slope of line c?

11. If $f(x) = x^2 + 3$ and $x = y + 2$, when $y = 3$, $f(x) =$

12. If a square is inscribed in a circle and the area of the square is eight, what is the longest distance that a straight line could be that originated and terminated on the circumference of the circle?

13. What is the one integer that is between 999 and 1199 and satisfies these two conditions:
Its digits sum to seventeen.

Its tens and units digits are the same.

S T O P Do not proceed to the next section until time is up.

Section 8

Time—25 Minutes

Consider the following statement.

Some people think that war is justified under certain circumstances.

Assignment: Write an essay in which you agree or disagree with the preceding statement. Develop your point of view on this statement and be sure to support your stance with sufficient details.

S T O P When you are finished with your essay put your pencil down until the time allotted is over.