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 Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ			

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.

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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 University 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* magazine 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 T. Unger, who had just turned sixteen, had danced all the latest dances from New York before he put on long trousers. And now, for a certain time, he was to be away from home.

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. 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 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 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 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 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."

"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 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 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 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 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 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, 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 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. 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 photography. 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 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 died in the Manchurian desert. Abe was also active in the Communist Party, organizing literary groups for workingmen.

Unfortunately, most of this radical 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 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 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 experimental 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 continuing 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 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.

STOP Do not proceed to the next section until time is up.

Section 2

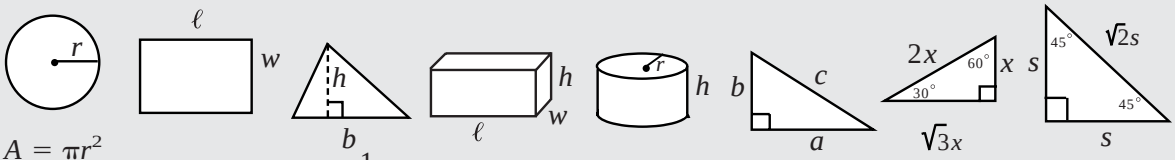
21 Questions ■ Time—25 Minutes

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



$A = \pi r^2$
$C = 2\pi r$

$A = \ell w$

$A = \frac{1}{2}bh$

$V = \ell wh$

$V = \pi r^2 h$

$c^2 = a^2 + b^2$

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. What percentage of 75 is 12?

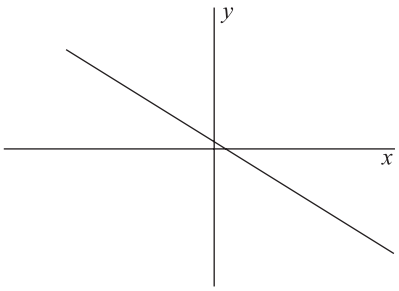
(A) 8%
(B) 12%
(C) 16%
(D) 18%
(E) 20%

2. If a circle is inscribed in a square of area 36, what is the area of the circle?

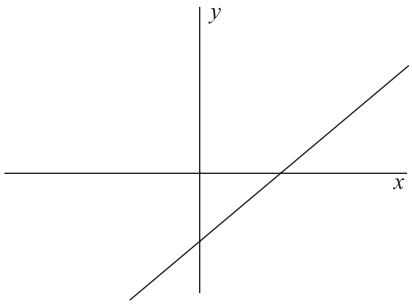
(A) 36π
(B) 24π
(C) 12π
(D) 9π
(E) 6π

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

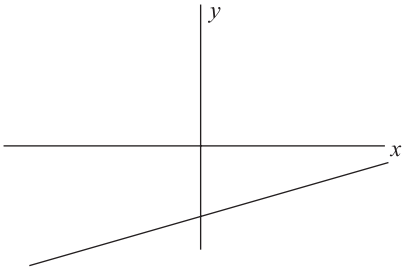
(A)



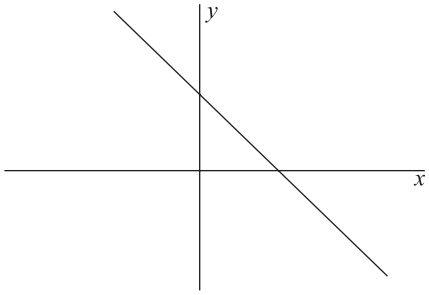
(B)



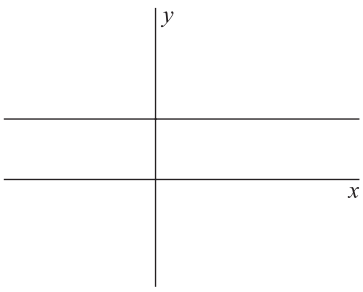
(C)



(D)



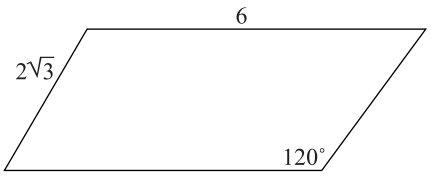
(E)



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) $\frac{2}{9}$

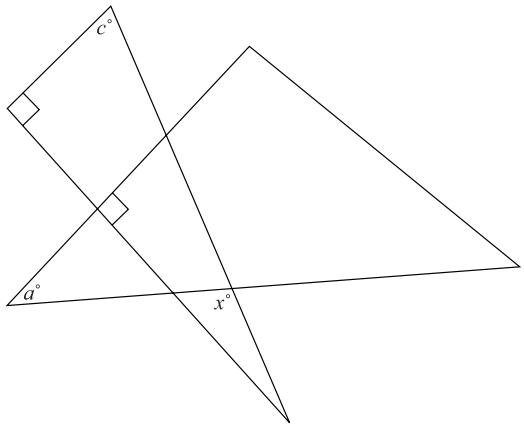
(B) $\frac{4}{5}$

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

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

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

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) $\frac{1}{64}$

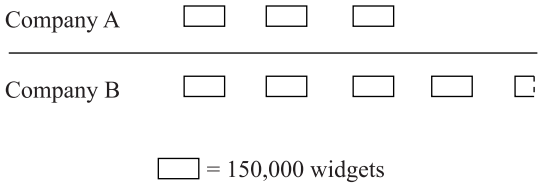
(B) $\frac{1}{16}$

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

(D) 16

(E) 64

9.



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?

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

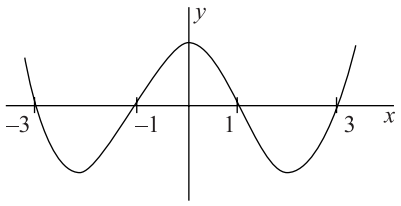
(A) -2
(B) $-5\frac{3}{5}$
(C) -7
(D) -8
(E) $-8\frac{3}{4}$

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

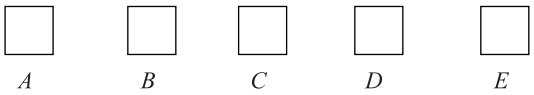
16.



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.



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

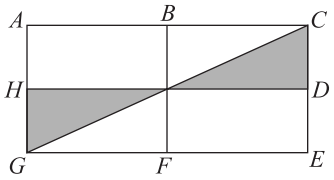
Boxes A, C, and D contain numbers divisible by three.

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) $\frac{p}{n}$
(D) $\frac{-n}{p}$
(E) $\frac{n+p}{p}$

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.

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

2. Debating (A) the energy bill was the first order of business (B) for the Senate; to set (C) the calendar for the upcoming session was to follow (D). No error (E)

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

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

5. Reading widely (A) in her field, making herself (B) available to students, and her sophisticated research (C) paid off for (D) Professor Jackson: she was awarded tenure last year. No error (E)

6. One cannot perform multiple tasks simultaneously (A) if one is (B) easily distracted (C) by one's surroundings. (D) No error (E)

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

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

9. Most people in the neighborhood agree that (A) it is reasonable for (B) the representative to not acquiesce (C) to (D) the demands of the transit authority. No error (E)

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

Improving Sentences

Directions:

1. The following questions test your knowledge of English grammar, word usage, word choice, sentence construction, and punctuation.
2. Every sentence contains a portion that is underlined.
3. Any errors that occur will be found in the underlined portion of the sentence. If you believe there is an error, choose the answer choice that corrects the original mistake. Answer choices (B), (C), (D), and (E) contain alternative phrasings of the underlined portion. If the sentence contains an error, one of these alternate phrasings will correct it.
4. Choice (A) repeats the original underlined portion. If you believe the underlined portion does not contain any errors, select answer choice (A).
5. There will be no change in any parts of the sentence that are not underlined.

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, often portraying human frailties and failings.

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

(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 it has been subsumed under the study of linguistics.

(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

Directions:

1. The following questions test your knowledge of paragraph and sentence construction.
2. The following passage is a rough draft of an essay. This rough draft contains various errors.
3. Read the rough draft and then answer the questions that follow. Some questions will focus on specific sentences and ask if there are any problems with that sentence's word choice, word usage, or overall structure. Other questions will ask about the paragraph itself. These questions will focus on paragraph organization and development.
4. Select the answer that best reflects the rules of English grammar and proper essay and paragraph writing.

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"

STOP 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, pharmaceuticals, 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.

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.

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 Amigos area and the Madre de Dios watershed in general.

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.

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.

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

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.

STOP Do not proceed to the next section until time is up.

Section 5

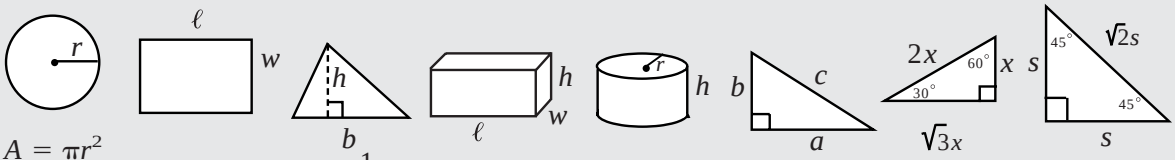
21 Questions ■ Time—25 Minutes

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



$A = \pi r^2$
$C = 2\pi r$

$A = \ell w$

$A = \frac{1}{2}bh$

$V = \ell wh$

$V = \pi r^2 h$

$c^2 = a^2 + b^2$

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) $\frac{p}{2}$
(B) $\frac{3p}{2}$
(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) $\dfrac{15}{8}$

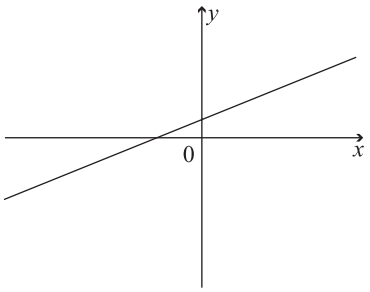
(E) $\dfrac{6}{5}$

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

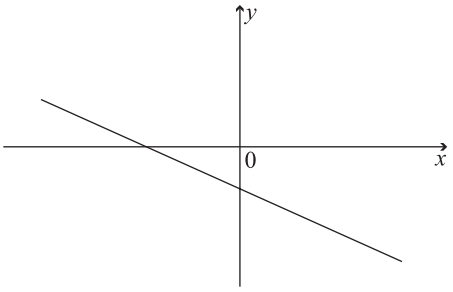
(A) 1
(B) 3
(C) 5
(D) 7
(E) 10

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 $y = mx + b$?

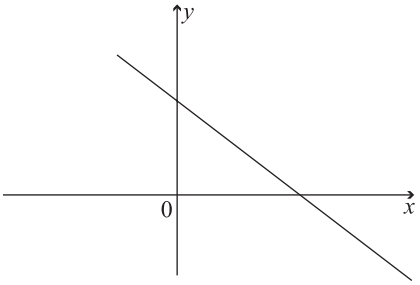
(A)



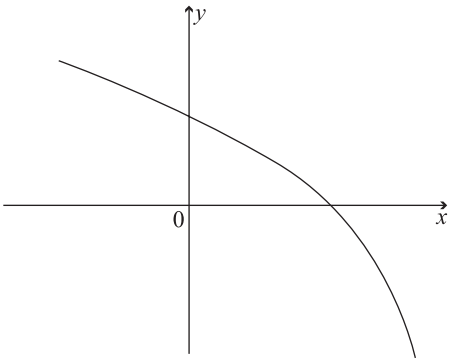
(B)



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

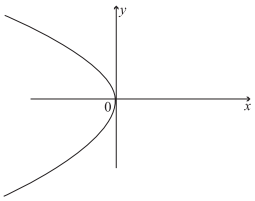
(B) $\dfrac{3(x-2)}{x-4}$

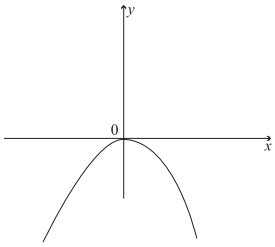
(C) $\dfrac{4(x-3)}{x-2}$

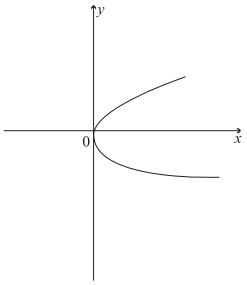
(D) $\dfrac{x-4}{2(x-2)}$

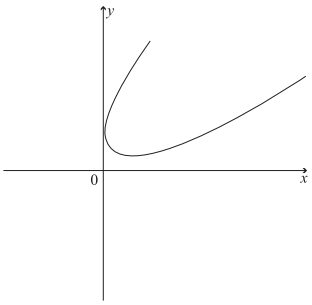
(E) $\dfrac{4(x-3)}{3(x-2)}$

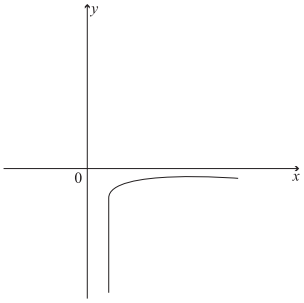
9. If $f(x) = x^2$ is graphed on a standard xy-axis and then the graph is rotated 90° clockwise, which of the following graphs would result?

(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)

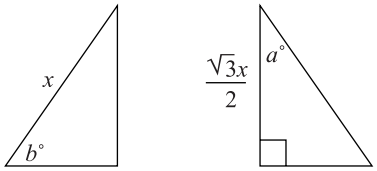
11. If x and y are positive integers and $\frac{x}{y} = \frac{1}{2}$, then $x + y =$

(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

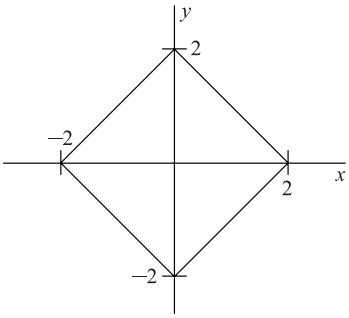
13.



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

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

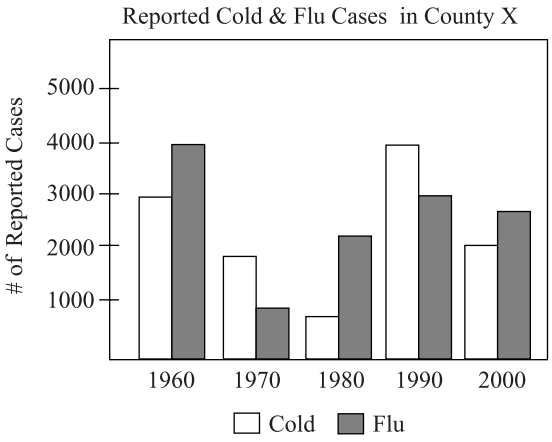
14.



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.



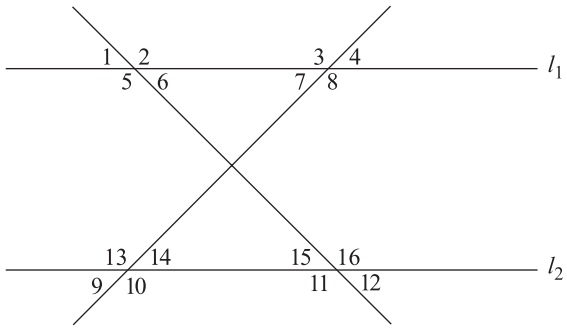
15. Which year had the least percentage difference in reported incidence of flu and cold?

(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?



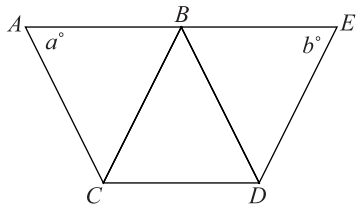
I. 6 and 12
II. 2 and 9
III. 4 and 10

(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

STOP 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 laboratory 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 molecules 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 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 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 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 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.

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" 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 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 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.

STOP Do not proceed to the next section until time is up.

Section 7

13 Questions ■ Time—20 Minutes

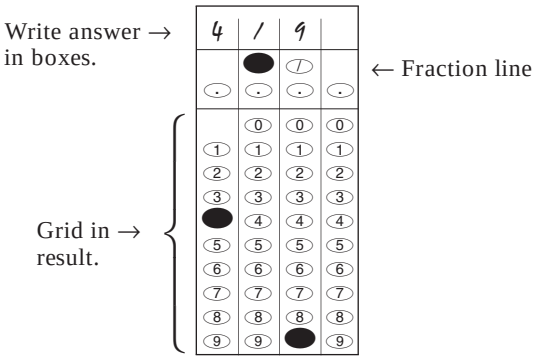
Notes:

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.

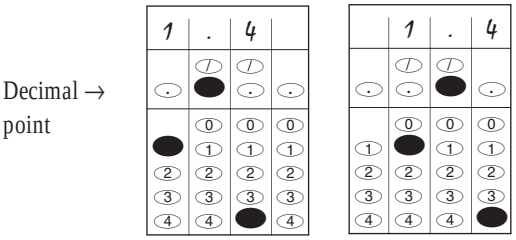
Directions for Student Produced Responses

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



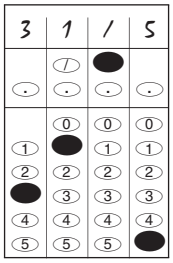
Answer: 1.4
Either position is correct.



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



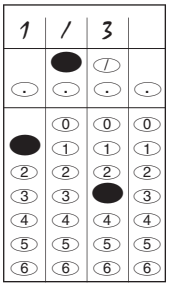
is gridded, it will be read as $\frac{31}{5}$, not $3\frac{1}{5}$.

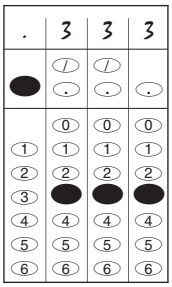
Decimal Accuracy

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 . . .





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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?

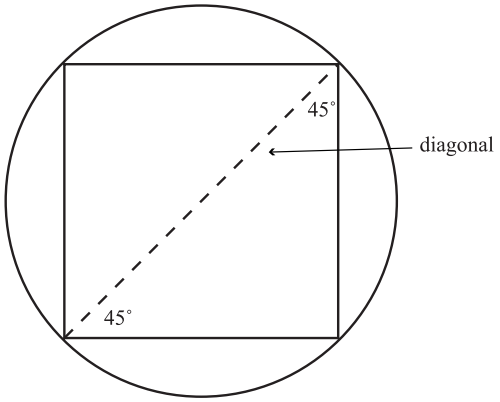
4. What is the least common multiple of 18 and 24?

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 $n = \frac{10(k+1)}{k-1}$, 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.

STOP Do not proceed to the next section until time is up.

Section 8

Time—25 Minutes

Directions: Think carefully about the statement below and the assignment that follows it.

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.

STOP When you are finished with your essay put your pencil down until the time allotted is over.

Answers and Explanations

Section 1

1. C The passage begins, "Musical notes, like all sounds, are a result of the sound waves created by movement." The author then goes on to talk about musical notes and how they illustrate properties of sound waves. Choice (C) captures this idea.

2. A Pitch is determined by the frequency of the sound wave. This eliminates (B) and (E). Choice (C) seems to refer more to the intensity, so eliminate it too. The final sentence says that pitch can be described either in numbers or in letters, so eliminate (D). That leaves (A), the correct answer.

3. B The passage states that Langston Hughes "persuaded her to continue her education in the North." And the passage uses this fact to explain her transfer to Northwestern. This is what (B), the correct answer, suggests.

4. C The passage doesn't specifically say that Walker was writing poetry before she entered New Orleans University. Eliminate (A). Hughes recognized her talent, but he didn't create it, so eliminate (B). Hughes recognized her talent before she transferred to Northwestern, so eliminate (D). The passage, if anything, implies that Walker wrote poetry for some time before publishing anything, so eliminate (E). The passage makes reference to her parents' occupations and encouragement, implying that they had an influence on her decision to become a poet.

5. C The author is poking a bit of fun at the Ungers, so eliminate (A), (B), and (E). His tone is more playful than downtrodden, so the answer is (C).

6. D The "Chicago beef-princess" suggests the wider high-class social world in Chicago. When one thing stands in for another, it is a metaphor. The answer is (D).

7. A Even if you do not know the definition of *fatuity* you can still get this question. John is going from Hades, which we can assume is hot, to Boston. He will probably not need the light suits and fans. The answer is (A).

8. B We know that John does not feel rejected, because he says he knows he will always be welcome at home. Eliminate (A). On the other hand, he does feel something negative, or he wouldn't cry. Eliminate (C) and (E). The handshake and the fact that John's tears are not mentioned until he has turned away from his father suggest that he is composed. The best answer is (B).

9. C If you were leaving home (and you were crying), why would you stop and look back? Most likely you would do so because you were sad to leave and wanted to get one last look before you went. Which of the answer choices matches this sentiment? Choice (C) does. The meditation on what the sign says serves to emphasize the quaintness of the town, of which John will no longer be a part. The other answers rely on your being distracted from the main emotions of the story.

10. E Hades is hell in Greco-Roman mythology. Midas represents wealth. Unger resonates with the hunger the family feels for the wealth and prestige of the North. In other words, the names suggest that the story uses the experiences of this one family to represent a larger situation. It is an allegory, choice (E).

11. C *Infused* is used to mean that his work was filled with the experiences he had in Manchuria. Eliminate all but (B) and (C). *Saturated* has something of a negative tone, and the author praises Abe's work, so eliminate (B). The answer is (C).

12. E The metaphorical use of orbit and gravitational pull is used in conjunction with the negative words "controlled" and "oppressive." Abe's work is not controlled by oppressive forces. Eliminate (B), (C), and (D). Choices (A) and (E) are similar answers, but (E) better captures the author's intent.

13. D Abe forged a medical certificate, so we know he was not actually sick. You can eliminate (A) and (B). The passage makes no reference to Abe helping the sick and injured, so eliminate (C). The sentence in the passage says that the forged medical certificate allowed him to avoid

fighting. Choice (D) corresponds with that meaning. Choice (E) can be eliminated because you don't know what his intentions were for after the war.

14. E Even if you don't know the defintion of *apocalyptic*, you probably know that it is a negative word. Eliminate (D) (*exhilarating* is a positive word). There is no reference to nuclear weapons in the passage, so eliminate (A). There was *famine*, and Abe seems to have been *strongly affected by the loss of his father*, but neither of these answers is specific enough. Only (E) expressly answers the question.

15. A This question is a little bit more difficult than some vocabulary questions because you have to look in a few different places. The third paragraph, where the word appears, tells you that the avant-garde group was political and that Abe worked in various genres. The fourth paragraph refers to his earlier work, which was the work in the third paragraph, as "experimental and heavily political." Since one of these words is an answer choice (A), it is the best answer.

16. C This question basically asks you to distinguish between the author's opinion and the basic facts of Abe's career. Choices (A), (B), and (E) all contain evaluative opinions, so eliminate them. The author expresses strong opinions about the themes *furusato* and the emperor, but never presents any facts about their influence on Japanese literature in the world. The best answer is (C). The author presents it as a known fact that young Japanese artists after World War II were interested in Marxism.

17. B As always, go back to the passage to look for the context of the phrase. Shortly after the phrase appears, the author says that readers have wrongly decided that *Woman in the Dunes* was Abe's masterpiece. The author also refers to the lack of translations of Abe's earlier works. The answer that best summarizes these two things is (B).

18. D The author's purpose in paragraph 4 is to suggest that too much attention has been given to Abe's later work, as you just determined in question 17. So the answer cannot be (A). There is only a brief comparison to Abe's contemporaries, so (B) is too specific. (E) is not factually correct, since most of the work the passage discusses was produced in Japan. You are left with (C) and (D). (C) is too neutral; this author is opinionated. She/he does not suggest that Abe's later work is bad, but rather that his early work also deserves attention. Choice (D) is the best answer.

19. B The author is most interested in literary works. There is no reason to suspect that the author is an artist or writer. The tone is critical and scholarly. (B) is the best answer.

20. D The author of this passage does express many strong opinions, but not in regard to Marxism. You can therefore eliminate both (A) and (B). If anything, she/he is more positive than negative about the influence of Marxism on Abe's work. Eliminate (C) and (E), which imply a negative bias. The answer is (D).

Section 2

1. C With a calculator this problem is straightforward enough, but you do not need a calculator to solve this problem. The wording is a bit tricky, but to find the percentage of 75 that 12 represents, you would place 12 over 75. This can be simplified $\frac{12}{75} = \frac{12/3}{75/3} = \frac{4}{25}$. Percent means "of 100," so if you change the 25 in the denominator to 100, you'll have your percentage in the numerator. $\frac{4}{25} = \frac{4 \times 4}{25 \times 4} = \frac{16}{100}$. This is answer (C).

You could also have set up an algebraic equation, and then cross-multiplied to find the answer.

$$\frac{12}{75} = \frac{n}{100}$$
$$(12)(100) = (75)(n)$$
$$1200 = 75n$$
$$\frac{1200}{75} = \frac{75n}{75}$$
$$16 = n$$

2. D If a circle is inscribed in a square, then the circle is inside the square. You can find the length of the square's sides using the area formula for a square:

$$A = s^2$$
$$36 = s^2$$
$$6 = s$$

It might help if you draw a circle inside a square to visualize the next part. The side length of the square is the same as the diameter of the circle. Draw a diameter and you'll see that it's the same length as a side.

This is a key relationship that the two figures share. Once you know the circle's diameter is 6, its radius must be half that, 3. This radius can be placed into the area formula for a circle:

$$A = \pi r^2$$
$$A = \pi(3)^2$$
$$A = 9\pi$$

Choice (D) is correct.

3. B First, you are looking for a line with a positive slope, which means that it rises as you go from left to right. This eliminates choices (A), (D), and (E). Second, a slope of 1 means that it rises as much as it runs (it goes up at the same rate that it goes over). A line with a slope of 1 will be halfway between a line that is completely horizontal and a line that is completely vertical. Choice (B) is that line, since the rise in choice (C) is too gradual.

4. C To answer this question, you have to determine how the series is generated. The numbers are increasing, so it is very unlikely that either subtraction or division is involved. The numbers increase, and note how fast the increase is. Addition can be ruled out since the increase from one term to the next is too great; simple multiplication is also unlikely. Look at the four terms closely, and you'll notice that each number is the square of an ascending integer. The series is one squared, then two squared, then three squared, and so forth. This series then is generated by squaring the integers. Therefore, the eighth term is eight squared, 64. Choice (C) is correct.

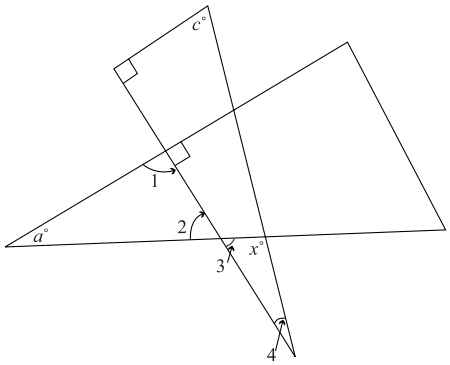
5. B The area of a parallelogram is the height times the base. You do not know the height, but you can determine it by using the geometry of a triangle. If you drop a perpendicular from the top left corner to the opposite side (which you will call the base), then you have a triangle whose height is the height of the parallelogram. Measures of adjacent angles of parallelograms sum to 180, and so the bottom left-hand angle measures 60° (this is because the bottom right interior angle is 120°, and $180 - 120 = 60$). Surprise! This gives you a 30-60-90 triangle, and you can determine the height. Since the hypotenuse is $2\sqrt{3}$, the height is 3. The base is 6, and so the area is:

$$A = bh$$
$$A = (6)(3)$$
$$A = 18$$

That's choice (B).

6. A To find the reciprocal, switch the numerator and the denominator. Once you've flipped the fractions over, look for a fraction where the numerator is greater than the denominator and where the difference between the two is greatest. Choices (A) and (E) look like the best candidates. The reciprocal of A is $4\frac{1}{2}\left(\frac{9}{2} = 4\frac{1}{2}\right)$, and the reciprocal of (E) is $4\frac{1}{3}\left(\frac{13}{3} = 4\frac{1}{3}\right)$. Choice (A) is the greatest.

7. E Another sketch with more of the angles numbered is helpful here.



Angle 1 is 90° because its measure and the measure of the angle adjacent to it must sum to 180. Couple this fact with the given information $a = 60$, and it means that the measure of angle 2 is 30° since the measures of the angles in that triangle must sum to 180.

Angle 3 is also 30° since it is vertical with angle 2. If you can find angle 4, you could figure out angle x since you will have two of the three angles on that small triangle. To find the measure of angle 4, look at the big triangle with angles 4, c, and the right angle. Since a right angle is 90° and $c = 50$, the measure of angle 4 is 40° since the measures of the angles in the larger triangle must sum to 180. If the measure of angle 4 = 40, and the measure of the angle 3 = 30, then

$$180 = m\angle 3 + m\angle 4 + m\angle x$$
$$180 = 30 + 40 + x$$
$$180 = 70 + x$$
$$110 = x$$

Choice (E) is correct.

If you had no idea how to answer this question, you might have noticed that the figures were drawn to scale. Looking at x, it certainly looks greater than 90°. Choice (A) is highly unlikely as an answer, and (E) would be your best guess since it's the only choice greater than 90°.

8. E A problem like this takes a careful step-by-step execution, but fortunately nothing else is needed.

$$\left[\left(2^2 + 2^2\right)^{-1}\right]^{-2} = \left[\left(4 + 4\right)^{-1}\right]^{-2} = \left[\frac{1}{8}\right]^{-2} = \frac{1}{\frac{1}{64}} = 64, \text{ choice (E).}$$

9. C Here you need to take care to read the chart correctly. Each complete box represents 150,000 widgets. Company B made one-and-a-half more boxes. That last box is not a full box, as you can see by its size and by the dashed lines on the right end. Choice (B) represents one box worth of difference (150,000 widgets), while choice (D)represents two complete boxes of widgets as the difference. Answer (C) is correct, since it shows a difference in production of one-and-a-half boxes (150,000 widgets + 75,000 widgets = 225,000).

10. A Since you are told that x is odd, you should suspect that the answer would have something to do with being odd or even or neither. That makes choices (A) or (B) the prime suspects. x cannot be even because an even number raised to an even power must be even. Try giving x an odd value, like 3. $x^x = 3^3 = 27$. This satisfies the facts given in the problem, since 27 is an odd number, so choice (A) is the answer.

11. E Do not be unnerved by the newness of this concept. All that you need to know about factorials is provided in the explanation. So be a good test-taking robot: Take the numbers they give you and feed them into the formula.

$$\frac{6!}{3!} = \frac{6 \times 5 \times 4 \times 3 \times 2 \times 1}{3 \times 2 \times 1} = 6 \times 5 \times 4 = 120, \text{ choice (E).}$$

If you don't get flustered (and no self-respecting test-taking robot ever does), the problem is quite straightforward. You just apply the concept of factorial and then multiply to find the answer.

12. B Here replace x with three, and then solve:

$$f(3) = (3!)^2 = (3 \times 2 \times 1)^2 = (6)^2 = 36, \text{ answer (B).}$$

13. A This one's the toughest factorial problem, but a clue is provided by the answer choices. Most of the answers are in terms of y. Therefore, you are probably going to have to manipulate $\frac{y!}{x!}$ so that only y's remain in the expression.

To do this, let's replace the x's with y's. Since, and y and x are integers, $x! = (y + 2)!$. Substituting this into the problem:

$$\frac{y!}{x!} = \frac{y!}{(y+2)!} = \frac{y!}{(y+2)(y+1)y!} = \frac{1}{(y+2)(y+1)}$$

This is choice (A). You could also solve the problem by picking values for the two variables that are consistent with $y + 2 = x$, and then plugging the values into the factorial fraction and also into the answer choices. If only one answer choice matches the factorial fraction, then you have the right answer. If two answers match, then pick another set of values for the variables and repeat the process.

14. A You will probably recall that the determinant of a matrix is found by cross-multiplying. Since you know the end result is -6, all you need is the right set-up and the proper computation:

$$\begin{vmatrix} n & 4 \\ 5 & -7 \end{vmatrix} = -6$$
$$(-7)(n) - (4)(5) = -6$$
$$-7n - 20 = -6$$
$$-7n - 20 + 20 = -6 + 20$$
$$-7n = 14$$
$$\frac{-7n}{-7} = \frac{14}{-7}$$
$$n = -2$$

15. E First note that the question asks which statements *must* be true. Some statements could be true under the right conditions, but if they are not always true, they are not going to be the right answer for this problem.

Now, from $p + q = 2q + 6$, you can determine: $p = q + 6$ by subtracting a q from both sides. If p is odd then q is odd, and if p is even then q is even (since an odd plus an even is odd and an even plus an even is even). But neither of them has to be even or odd. Thus I and II are not

necessarily true. The same is true for III, since p and q could both be odd, which would make their product odd. Choice (E) is the answer, since it's the only choice left standing.

One last point: this question should have been answered on the second pass. Once you saw the Roman numerals, you should have realized that it would take some time to answer, and that waiting until the second pass would allow you more time to get to questions that might take less time.

16. B Look at the graph and you'll see that there are three distinct regions in which x is greater than zero:

(1) x to the left of negative three
(2) x between negative one and one
(3) x to the right of three

Once your eyes give you that information, it's up to your brain to decipher the wilderness of greater than/less than signs and find the answer that describes these three regions correctly. Choice (B) does this.

17. E Since the question asks which number must be in Box E, the conditions must only allow for one number to be in Box E. There is only one prime number, 11, and so it goes in Box B. 9, 12, and 15 are evenly divisible by three, and so they go in A, C, and D. You don't know what order, they are in, but it doesn't matter. That leaves 16 for Box E, which means choice (E) is the answer.

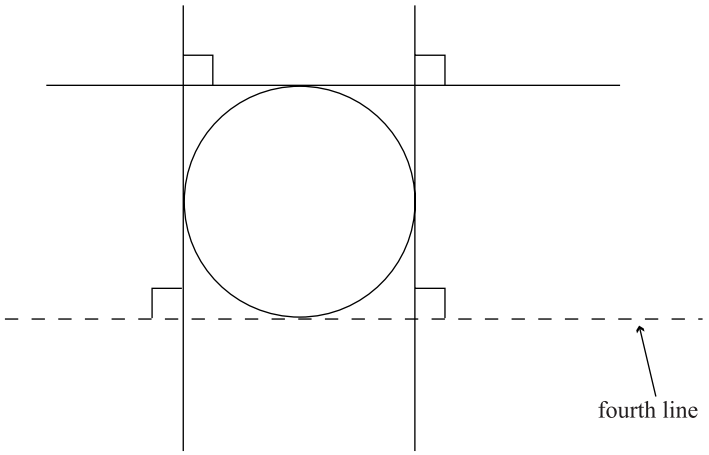
18. D Since B, D, E, and H are all midpoints on their respective lines, the rectangle is divided into four equal rectangles. The diagonal $\overline{CG}$ divides the two smaller rectangles it traverses into halves. One-half of each of these two rectangles is shaded, so a total of one of the smaller rectangles is shaded. Since the smaller rectangles are equal in size and there are four of them, one-fourth of the larger rectangle is shaded or 25%, choice (D).

19. D Since n is the same thing as n^1, you are looking to raise $n^{\frac{-p}{n}}$ so that the resulting exponent is 1. Remember that when you raise a number to an exponent, you multiply the exponents. What multiplied with $\frac{-p}{n}$ yields one? The answer is its reciprocal, $\frac{-n}{p}$.

$\left(n^{\frac{-p}{n}}\right)^{\frac{-n}{p}} = n^{\left(\frac{-p}{n}\right)\left(\frac{-n}{p}\right)} = n^1$. So (D) is the answer.

20. A A straightforward way to start this problem is simply to start with the first prime number. 2 and 3 cannot be *n*, but 5 could since 3, 5, and 7 could form a prime triplet. Continuing on with the prime numbers to fifty, there is not another prime number whose closest primes are two more and two less than itself. Thus the answer is (A).

21. B If a geometry figure is described but not drawn, it's always a good idea to sketch the figure yourself. Draw a circle and then one tangent line. Next draw a second tangent line that is perpendicular to the first. Now draw a third tangent that also is perpendicular to the first. Your sketch can only look like this:



Your lines could be rotated around, but the interrelationships of the tangents must be the same. The only place to draw a fourth tangent line that will be perpendicular to two other tangent lines is at the bottom of the circle.

Does this figure look familiar? It should, since it has the same appearance as the first geometry problem in this section, question 2. You have drawn a circle inscribed in a square. The fact that it is a square could clue you in to the fact that there are two sets of parallel lines. You might also recall from your geometry class that two lines that are perpendicular to the same line are parallel to each other. This means that both sets of tangent lines across the circle are parallel. Either way, the answer is (B).

Choice (D) is close, but the circle is inscribed in the square, not the other way around.

The fact that questions 2 and 21 employ the same figure shows you how two questions can use the same figure but vary greatly in terms of difficulty. A point to ponder is, "How did the test-takers make the last question harder?" First and foremost, no figure was included. This should spur you to draw any figure that is not given to you, and make a hard problem a lot easier to visualize and answer.

Section 3

1. E You should always take a close look at underlined pronouns in identifying sentence error questions. "Registered" in this sentence is an adjective, and "who" is a pronoun that represents "voters." Because it is the subject of the verb, "who," rather than "whom," is correct. In addition, there are no other errors in this sentence. So, the answer is (E).

2. C This sentence lacks parallel structure. "Debating" in the first part should be matched by "setting" in the second part. The answer is therefore (C).

3. B There's an error in diction here. "Affects" is a verb; "effects" is the noun form. "Side effects" is the desired phrase. Choice (B) is the answer.

4. B The error here is difficult to detect. The phrase *over the last decade* indicates that the growth is still continuing. This is also indicated in the present tense form of *employs* (D). Thus the first verb should be *has grown* instead of *had grown*. Choice (B) is the answer.

5. C Here is another case of missing parallel structure. This is a common mistake in this section. *Reading widely* and *making herself* need to be matched by another gerund in part C, such as *conducting sophisticated research*. The answer is (C).

6. E Using "one" might sound awkward to one, but it is not incorrect. Nor are there any other errors. The answer is (E).

7. D The tenses of the verbs in this sentence are not consistent; this is another favorite error in this type of question. *Has undergone* should be matched with *has exploded*. The answer is (D).

8. D In comparing two things (films in this case), one should use the comparative case of an adjective and not the superlative. *Best*, choice (D), is superlative and not comparative (*better* would be correct), and so it is incorrect.

9. C You *agree with* a noun, and *that* a phrase. (A) is idiomatically correct. There is no error in (B). You may use *reasonable for* with the construction here (subject + infinitive). No error there. *To not acquiesce* is acceptable for spoken speech, but in written language it should be *not to acquiesce*. There's the rub. The answer is (C).

10. C A country (Canada) requires the pronoun *it*, not *they*. The problem is therefore in choice (C).

11. E This sentence is unnecessarily wordy. *Having published her first novel, the author* is a lot snappier and more direct. The answer is (E).

12. D Here, *despite* is not used in a grammatically correct way. *Despite the fact that* is grammatically correct, but it is unnecessarily wordy and it is not appropriately joined with a semicolon. How about just *but*? That's the answer (D).

13. C This sentence might have sounded okay to you, but it has a misplaced modifier. These are very popular mistakes in the sentence correction questions. The phrase *after he had worked on his serve for a few days* modifies the noun *player*, so player must be right next to it. Only (B) and (C) accomplish this. Choice (B), however, changes the sense of the original sentence. The answer is (C).

14. C In sentence construction parallel parts of a sentence should have parallel forms. In this sentence the verbs *portray* and *reveal* are parallel, but in the original sentence construction they are not in parallel form. Choice (C) corrects this mistake.

15. B This is another favorite of the test writers: Any time you have "not only" you need to signal the contrasting phrase with "but also." The answer here is therefore (B).

16. A There is no error here. The answer is (A).

17. A There is not a grammatical error in the underlined portion, and none of the alternatives improve upon the original. Because you do not repeat the subject, there is no comma needed before the underlined portion. Were you to choose answer (C), you would need to add a comma. Choice (A) is the answer.

18. D Here the error is logical rather than grammatical per se. The first part of the sentence emphasizes sympathy, but the second part focuses on negative human qualities. You need a contrasting coordinator. That leaves (D) and (E). (D) is the better choice.

19. E It was not because Pancho Villa's raid was *part of the tumult of the Mexican revolution* that it *prompted a retaliatory expedition*. *Therefore* is misused. Simply delete it and you have a correct sentence. The answer is (E).

20. A There is nothing grammatically wrong with the underlined portion, and none of the other choices improve on the wording of the sentence. (A) is the best choice.

21. E Right away, you should notice two sentences in passive voice and think about making them active. Only (D) and (E) do that. (D) includes an imprecise *−ing* verb. The test writers love to throw these around. Sometimes they are the right answer, but you should always scrutinize them. Here (E) is a much sharper sentence.

22. A Doesn't sentence 2 seem too specific? It is really an explanation for why the men couldn't use their limbs. It should therefore follow sentence 4. The answer is (A).

23. D What is the logical connection between the two sentences? The first deals with the highest trip. The second deals with the largest balloon. *Now* has nothing to do with that. Neither does *in the nineteenth century*. You don't want to begin with either of these. *Moreover* represents paragraph 2 as an extension of the ideas in paragraph 1, which is also inaccurate. The easiest thing to do is simply get rid of now, (D).

24. C Sentence combination is huge in this section. This example is trickier than most. It already has an *and* in the first sentence, so if you use *and* again your sentence will start to sound like a run-on. Here, too, the *−ing* verb is imprecise. *Which* should really go very close to the noun it modifies, so eliminate (A). *But* implies a contrast, when all of these ideas are similar, so you can eliminate (E). Go with the semicolon (C).

25. D *All of whom returned safely* is not a complete sentence. It modifies "passengers" in the preceding sentence. Only (D) addresses that major problem!

26. E What's missing in this sentence is *where*. As it stands now, it implies that *literacy program* is the direct object of *working*. Choices (D) and (E) correct the error, but (D) makes undesirable changes to the verb tenses. (E) is the best answer.

27. B *That had automobiles* should not be separated by commas because it is an integral part of the category being described, not an added description. But it isn't correct in written English to write *people that*. It has to be *people who* (or *people whom* if what follows positions the people as the object of a verb). The answer is (B).

28. D The sentence as it stands is a bit of a disaster. It sounds like a run-on: it just goes on and on like the Energizer Bunny. So what you will want to do is make it more direct, showcasing the important parts and subordinating the descriptions that are really secondary. You also need a comma after *It is hard to believe*. Start with the easiest thing, and eliminate (A) and (C) off the bat. Which of (B), (D), and (E) makes the sentence more direct? Definitely not (E). Choice (B) gets rid of the second comma/and combination, which could be good. But is a colon really in order here? No. The best answer is (D).

29. A This is a little tricky because the repetition here does serve a purpose; it isn't just extra wordage that got in the author's way. Basically, the sentences are a list. When you have clauses that form a list (or other things requiring lots of words and/or punctuation), you separate them with semicolons rather than commas. (A) looks good. All of the other answers, except (D), change the sense of the original ever so slightly. (D) could be possible if it had *and* before the last clause, but (A) is still better.

30. B While it would be possible to add a comma after *convenience*, it doesn't make much sense to add one after *necessity*. Changing *you live* to *one lives* is possible, but not required. So is adding *Desert*. The comma after *apparently* isn't strictly required, but it is desirable. The only absolutely necessary change is to replace "there" with "they are" (choice B). "There are" might have been more difficult to rule against (though still incorrect), but the sentence doesn't even say *there are*; it just says *there*.

Section 4

1. A What is the name of the kind of talk that is delivered at a funeral? *Eulogy*. If you know this, the answer pops out at you. If you did not know it, consider each of the choices in their turn. *Epigraph* is a quote at the beginning of a piece of writing. *Eponymy* is something with the same name as something else. *Epitaph* is what is written on a gravestone. That leaves (A) and (B). *Elegy* is a poem written in memory. You don't "give" a poem. That leaves (A), the correct answer.

2. C On this dual-blank sentence, let's do the first blank first since we know that the blank was *an encouragement to the rest of the team*. Good spirits would be an encouragement to the rest of the team. You can eliminate (D) and (E). As for the second blank, what does a string of defeats do to a team? It discourages them. (A), *elated*, does not match this. Nor does (B), *inundated*. But (C), *dispirited*, fits well and you've already eliminated (D) and (E). Choice (C) is the best answer.

3. B You might not know what *resorted* means, but if you know it's a negative word, you can make an educated guess. Which of the answer choices is also a negative verb? (A), (C), and (D) are not. (E) is not a good answer because *swindling* has nothing to do with campaigning. Choice (B) is the best choice.

4. E The second half of the sentence gives more clues, so you ought to start there. What are cats most likely to do to dogs? Avoid them, probably—which will lead you to (E), the correct answer. But for good measure, let's eliminate the other possibilities. For a cat to *undermine* a dog isn't logical. Being undermined is something that happens to humans or projects, so you can definitely eliminate (D). One could say that a cat *enticed* a dog to do something, but it isn't good usage simply to say that the cat enticed the dog. Eliminate (A). Is it likely for a cat to gracefully *apprehend* a dog? No. Eliminate (C). The only possibilities left are (B) and (E). A cat might possibly defeat a dog in battle, but use the other clues. Defeat and "gracefully" don't go well together, and it doesn't make sense for a battle to happen while the cat is creeping across the lawn. Eliminate (B). The answer is (E).

5. A Attack the second blank first. The most likely adjective to describe attention will be something like *undivided* or *rapt*. (A), which includes *rapt*, is the answer. (B), which includes *spellbound*, is also possible. But *pointed* anecdotes doesn't make sense, so the answer is (A).

6. E You know the word is going to be negative: both *bogged* and *contentious* tell you so. Eliminate (B). Now think that the word is basically going to mean mess. You can eliminate (A) and (C). Conundrum is a confusing problem, not really a messy situation. (E) is the best answer.

7. B Here the first blank seems more approachable. The reference to a clear leader indicates that the outcome was known. Eliminate (A) and (E). For the second blank, the clue is that the leader *misstepped* and so rest of the competitors must have gotten a chance at the title, but they weren't assured a victory. Eliminate (D) and (C). The answer is (B).

8. D Consider the first blank. The word *though* indicates that the drug *was intended to be beneficial* but ultimately was not. Do any of the answer choices mean not beneficial? (A), (D), and (E) do. How would the medical community respond to a bad result? Ostensibly they would think that a bad result was bad. That eliminates (A) and (E). This leaves (D).

9. B A life that only lasts 24 hours is what in comparison to a normal human life? It is short. Which of the answer choices contains the notion of shortness in its meaning? (B), *ephemeral*, does.

10. E What is a species likely to do in an environment? It either grows in number or diminishes in number. Each of the first words, except in (B), could mean one of those things. Eliminate (B). When you discover that there is an abundance of food, you know that the first word will suggest that the kangaroos increased in numbers. Eliminate (A) and (D). Now you need the second part of the sentence. To grow in numbers, the kangaroos will need an absence or near absence of predators. Eliminate (C). You are left with (E).

11. C The best clue in this sentence is "fears." Citizens with fears can only be *concerned* or *alarmed*. That leaves (B) and (C). It's not particularly logical to say that a speech is designed to *ignore* something. On the other hand, it is common to use *assuage* with *fears*. The best answer is C.

12. A Let's attack the first blank. If the female is a fencing champion then she must be skillful with her *rapier* (her sword). Which of the first answer choices matches skillful? Choices (A), (B), and (E) do. (C) is possible but not likely. As for the second blank, the conjunction *but* indicates that her skillfulness in fencing is in contrast to her lack of skill in other sports. Which of the remaining second answer choices matches with this pre-guess? Only *awkward*, choice (A), does.

13. B There is a contrast drawn in the sentence between receiving accolades—praise, awards—and Jane Goodall's initial standing in her field. She must have met with a lack of support or outright disapproval. Eliminate (E) because it is illogical. Eliminate (C) because it goes with, rather than against, accolades. An *acolyte* is someone who assists a clergyman, so you can eliminate (A). You are left with (B) and (D). A *charlatan* is a fake, an incompetent. If the sentence said, "Some people thought she was a ——," *charlatan* might work, but it says she actually was "a —-." She couldn't have been a fake and later gotten awards. Eliminate (D). You are left with (B), a *maverick*, an independent thinker, a dissenter, a pioneer.

14. D This sentence is contrasting the views of Alston and Mario (the conjunction *but* clues you into this fact). Alston thinks that the lecture was *impressive*, which probably means smart, accurate, logical. Mario's view is in contrast to this. You can eliminate (A) and (C). *Recondite* is not likely to be a word to describe a lecture, so eliminate (B). You are left with *specious* or *fictitious*. *Specious* means logically false; *fictitious* comes from fiction, and presumably the philosopher didn't tell a story but rather made an argument. Choice (D) is the best answer.

15. A If you know that *insinuation* is a negative word, you can guess that the first blank will describe a logical response to a negative thing. *Balk* is a common word in this situation, but if you don't know that use the process of elimination. You can eliminate (B) and probably (D) because they are not negative words. Move to the next blank. If the official's response is negative, it's most logical that he is accused of having something to do with the *economic woes*. Eliminate (C). That leaves (A) and (E) as the most likely answers. But you don't "rile" *at* something; it's not good usage. Eliminate (E) and you are left with (A).

16. D The author is speaking generally in this first paragraph. Global warming and species extinction are two big, general problems; he refers to them in a positive light at "maintaining global climate and genetic resources." "Genetic resources" refers diverse species of plants and animals, choice (D).

17. E The author mentions that Los Amigos is relatively pristine, and that the rainforest is facing threats. Eliminate (A) and (B). He isn't talking in the passage about restoring the rainforest, but preventing future damage. Eliminate (C). He does not say that every other part of the rainforest is already destroyed beyond repair. Your logic should tell you that. Eliminate (D) and you are left with (E), the correct answer.

18. A First go back and get the context of the use of this phrase. It refers to land being set aside for conservation use. The only possibility is (A).

19. D This is a difficult question because it requires you to infer the answer. The best way to do that is to eliminate the least likely answers and then see what's left. The passage tells you that the agreement was "the first long-term permanently renewable conservation concession." There are two references to time in this sentence, so the answer must have to do with time—that leaves (B), (D), and (E). The author isn't really interested in the legal aspects, though, so eliminate (E). Because he includes both "long-term" and "renewable," the agreement probably wasn't the first contract that was simply one or the other. Eliminate (B). That leaves you with (D), the correct answer.

20. C This is a question that you should be asking yourself as you read through the passage. The passage begins by discussing the importance of conservation efforts in Amazonia and then links the work at the Los Amigos watershed with this goal. The correct answer will contain both of these things. (A) is too general. (B) isn't accurate—he doesn't focus on eliminating bad things but on continuing good things. (C) sounds good. (D) is incorrect because the passage is not primarily about the Peruvian government. (E) points to one issue that the passage discusses but lacks many of the other issues the passage discusses. (C) is the best answer.

21. D This question calls for a little nuance. He does advocate for his project, but does not position it against other projects. Eliminate (A). (B) is too general. (C) is not accurate—he does not condemn the government. (D) sounds good. (E) uses language that is too strong—he is not a zealot, but a scientist making his case in calm, rational language. (D) is correct.

22. E The author positions his project as complementary to other projects. These scientists are examples of the other amenable projects. The answer is (E).

23. E This is a tricky answer because the right choice is the one you'd least expect. The author focuses on working with plants in the watershed, but in the last word of the passage mentions an "herbarium," which through context clues and word study, you can guess means a laboratory where plants are grown. Eliminate (A). The author mentions studying "human-plant" interactions in paragraph 6. Eliminate (B). Somewhat surprisingly, the author is in favor of pharmaceutical use of Amazon plants, as he indicates in paragraphs 1 and 5 and implies in paragraph 6. Eliminate (C). (D) is obviously not the answer. You might think that because he focuses on naming, he means labeling, but in fact it is a scientist on another project, Robin Foster, who actually labeled plants. (E) is the answer.

24. B As always, first go back and read the section cited in the question. The sentence in which "providing names" occurs, mentions *communication about plants and the animals that use them*. You will recall that earlier in the passage, it was stated that one of the major projects in studying Amazonia was discovering new species. One hurdle for communication among scientists once a species is discovered is standardizing the name of the species. This is how "providing names" will *facilitate communication*. Choice (B) correctly points this out. (If you had difficulty with this question, notice that all the other choices mention issues not directly addressed in the passage. That is a strong indicator that an answer is incorrect.)

25. A The author's full argument goes, "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." The author is arguing that being informed is essential for conservationism, and so in this sense *botanical information has conservation value*. So even though (B), (C), (D), and (E) are all things the author might agree with, only (A) captures the meaning of the argument made here.

26. B You might confuse repeated use of the word watershed with an actual discussion of water pollution, but the author doesn't mention water pollution explicitly. The answer is (B). If you don't get this right away, you can arrive at it by eliminating the others. He does clearly mention all of the other choices.

27. C The author is talking about how his work at Los Amigos relates to other conservation projects, and how the Los Amigos area is related to other environmentally protected areas. Only (C) captures that meaning.

Section 5

1. C For every positive integer, there is a negative integer the same distance from zero. This means that there are an equal number of positive and negative integers. Therefore each set contains the same number of members, which is choice (C).

2. B Four sweaters cost p dollars, and so 12 sweaters at the regular price would cost $3p$ ($4 \times 3 = 12$). Since the sweaters are half-off, the 12 sweaters only cost half as much, $\frac{3p}{2}$, choice (B).

3. C This fraction looks complicated, but realize that the numerator and denominator are both fractions. You might then see that the numerator $\left(\frac{2}{3}\right)$ is less than the denominator $\left(\frac{4}{5}\right)$, and so this fraction is less than one. That eliminates (D) and (E) as possible answer choices. You have to simplify the fraction to find the answer, and since you're dividing fractions, remember to multiply by the reciprocal of the divisor:

$$\frac{\frac{2}{3}}{\frac{4}{5}} = \frac{2}{3} \div \frac{4}{5} = \frac{2}{3} \times \frac{5}{4} = \frac{10}{12} = \frac{5}{6}.$$ (C) is the answer.

4. E Here you just need to plug in and be careful. If $x = 3$ then $y = 1$ because

$$3y = x$$
$$3y = 3$$
$$\frac{3y}{3} = \frac{3}{3}$$
$$y = 1$$

If $y = 1$, then

$$y = \frac{10}{z}$$
$$1 = \frac{10}{z}$$
$$(z)1 = \left(\frac{10}{z}\right)(z)$$
$$z = 10$$

This is choice (E).

5. C $y = mx + b$ is the equation for a line, so the wiggly lines of choices (D) and (E) cannot be correct. A negative m means the slope is negative, so the line must slant down when viewed from left to right. That eliminates (A). The y-intercept b is positive, so the line must cross the y-axis above the x-axis. This is true of (C), so it's the answer.

6. A This problem requires a little careful decoding, but all the steps are straightforward. The first part of the order is 2 H-M, which are two medium hats. Usually the hats are $12 each, so two would cost $24, but since all medium-sized items are 25% off, the price is reduced. Twenty-five percent of 24 is 6, so together the two medium hats cost $18 ($24 minus $6). The next part is 2 H-L, which is two large hats, and together

they cost \$24. The last part of the order is 1 SH-M, one medium shirt, which costs \$9 since it is 25% off (\$3 is 25% of \$12, the normal cost of the medium shirt). Adding up $18 + 24 + 9 = 51$, answer (A).

7. A The task here is to solve for x. The test makers are betting that the square root symbol will throw you off a bit.

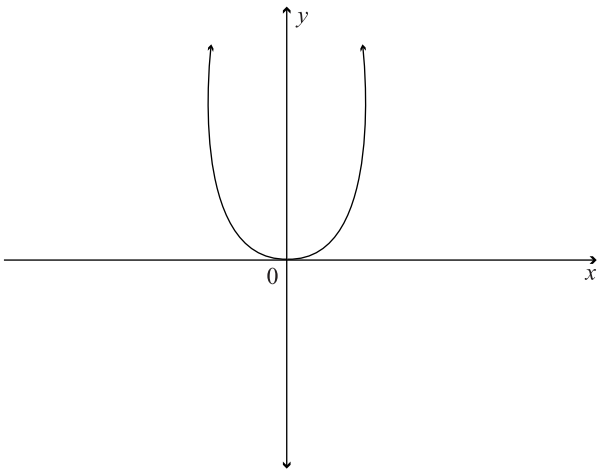
$$\begin{aligned} 5\sqrt{x} + 15 &= 30 \\ 5\sqrt{x} + 15 - 15 &= 30 - 15 \\ 5\sqrt{x} &= 15 \\ \frac{5\sqrt{x}}{5} &= \frac{15}{5} \\ \sqrt{x} &= 3 \\ x &= 9 \end{aligned}$$

Answer (A).

8. D Here there is no shortcut. We have to factor and then simplify.

$$\frac{x^2 - x - 12}{2x^2 + 2x - 12} = \frac{(x-4)(x+3)}{2(x^2 + x - 6)} = \frac{(x\text{-}4)(x+3)}{2(x+3)(x-2)} = \frac{x-4}{2(x-2)}.$$ (D) is the answer.

9. C The first thing to do is to have it clearly in mind what the graph of $f(x) = x^2$ looks like.



This shape comes about as a result of the x^2 term. When $f(x) = x^2$, the fact that all x values are squared makes every y value positive (keep in mind that $f(x)$ acts as the y value). This graph has no negative y values, but to find the right answer, it must now be rotated clockwise. This means rotating to the right.

Here's a good way to visualize this. Hold up your left hand, and make a bowl-shape with your fingers on one side and your thumb on the other. The tips of your fingers and thumbs should all be point towards the ceiling. This is your graph before rotation. Now take your left hand and shift it 90° to the right; in essence, snap your wrist down. The tips of your fingers and thumb should now be pointing to the right. Find the answer choice that looks like the position of your left hand. (C) is the answer.

10. E The correct ordered pair has to satisfy two conditions, $x - y > 2$ and $x + y > 4$. Let's start with the first condition and take it from there. In order for $x - y > 2$, x must be greater than y by more than two. This eliminates choices (A), (B), and (D). Now you have only two choices left to check the second condition, $x + y > 4$. If you add the x and y values of choice (C) together you get 4, but the value must be greater than 4. Choice (E) has to be the correct answer.

11. A The best way to approach a problem like this is to use one of the equations and solve for one of the variables in terms of the other. Then you can place that answer into the second equation.

This problem succumbs quite nicely to this strategy. Take the first equation and solve for y in terms of x. Cross-multiplication makes this simple.

$$\frac{x}{y} = \frac{1}{2}$$
$$2x = y$$

You can now substitute this information into $x + y$. Subbing in for y: $x + y = x + 2x = 3x$, which is (A).

12. B There are two main ways to approach this problem. You can come up with a snazzy algebraic formula, or you can go to the answer choices and start cranking in numbers. Let's use the crank method.

Whichever method you use, you must first determine how much Quentin paid for the three hot dogs. This is done by subtracting $7.34 from $10, giving you $2.66. This is the price, including tax, of three hot dogs.

With the crank method, starting with the middle answer choice (C) often yields a clue, even if it's incorrect. Choice (C) has a hot dog at 86 cents. Add 6 or 7 cents sales tax to this, and then multiply by three. You get:

$$3(86 + 7) = 3(93) = 279$$

Tip

You can add the entire amount of sales tax per dollar, 7 cents, or you can take into account the fact that 86 cents is not quite an entire dollar, so Quentin might not owe the entire 7 cents sales tax. This might seem vague, but the question does allow for some wiggle room since it asks "which is closest to the price . . ." Whether you use 6 or 7 cents sales tax, the same answer works best both ways.

You know that Quentin spent $2.66, or 266 cents. Answer choice (C) comes out at 279 cents, which is 13 cents too many. This means that (C) is incorrect because it's too great. If (C) is too great, then (D) and (E) are even greater, so they must also be incorrect. This leaves (A) and (B). Try (B). If it also too great, then the answer must be (A). Here's (B).

$$3(82 + 7) = 3(89) = 267$$

This is only one penny off. If you use a 6-cent sales tax, it is only 2 cents off. (B) is closest to the price of the hot dog, so it's the correct answer.

13. D Since the triangles are congruent, you know that the bottom right angle on the left triangle is a right angle. You also know that the side opposite of b is $\frac{x\sqrt{3}}{2}$, and from this you can deduce that the side adjacent to b is $\frac{x}{2}$ by using the Pythagorean theorem. Here's what the computation would look like:

$$a^2 + b^2 = c^2$$
$$\left(\frac{\sqrt{3}x}{2}\right)^2 + b^2 = x^2$$
$$\frac{3}{4}x^2 + b^2 = x^2$$
$$\frac{3}{4}x^2 - \frac{3}{4}x^2 + b^2 = x^2 - \frac{3}{4}x^2$$
$$b^2 = \frac{x^2}{4}$$
$$b = \frac{x}{2}$$

The sides of this right triangle, then, are in the proportions of a 30-60-90 triangle. And since angle b is opposite the second largest side, its measure is 60°, choice (D).

14. C You can infer that the figure is a square since all the sides must be congruent because they are all formed by points equidistant from zero. To find the area of the square, you only need the length of one side. You can get this two ways: you can use the distance formula for two points or you can take a shortcut and realize that the square is cut into four 45-45-90 triangles by the y- and x-axes. The length of each non-hypotenuse side of these triangles is 2, so the hypotenuse must be $2\sqrt{2}$. This hypotenuse is also the length of the square's side, so place this value into the area of a square formula:

$$A = s^2$$
$$A = \left(2\sqrt{2}\right)^2$$
$$A = 4 \times 2 = 8$$

Choice (C) is the answer.

15. E The smallest percentage difference is going to be the year where the flu column and the cold column are closest. (The converse is not true for the greatest percentage difference.) Eyeing the chart is the fastest way to determine the answer. The values in the columns for 2000 look and are the closest, and so the percentage difference is the least. (E) is the answer.

16. D Cold cases (white bar) have to be greater than flu cases (shaded bar), so there are only two decades that could be the correct answer, 1970 and 1990, choices (B) and (D). In 1970, the number of cold cases is about twice as many as the flu (2,000 to 1,000), so the percentage difference would be 100%. This makes 1990, choice (D), the answer by default, but you can see that the percentage difference works out to about 25% since there were roughly 4,000 cold cases and 3,000 flu cases.

17. A You may want to save Roman numeral questions for the second pass! A judicious use of POE will help you out on this one, though. Looking at I, angles 6 and 12 are both formed by the same intersecting line, and they are congruent. Since I must be true, you can take this information and cross out any answer choices that do not have I in them. Surprisingly, this gets rid (B), (C), and (D). The answer is either (A) (I only) or (E) (I and II only). Since these are the only choices, you do not even have to worry about III. Check II, and if it must be true, then the answer is (E). If it isn't true, the answer must be (A). As it turns out, 2 and 9 are not congruent, so the answer is choice (A).

18. A This problem looks rather complicated, but the negative in front of the a simplifies it. If $-a^{-b^{-c}}$ is positive, then a must be negative and raised to an odd power. To get your head around this, consider that if a were positive, the entire expression could not be positive. So (A) *must be* true.

19. D The first thing to recognize here is that the figure is composed of three triangles, and since all the line segments are congruent, all the triangles are equilateral and congruent to each other. Equilateral triangles are all 60-60-60 triangles, and so both a and b are 60. Choice (D) is true.

20. C Since the boys cannot sit by seat 3, both girls always have to be sitting in seat 2 and 4. The boys have to be in seats 1 and 5.

If the first girl is in seat 2, then the second is in seat 4. If the first boy is in seat 1 the second boy is in seat 5. That is one arrangement. The boys could switch seats, and that is a second arrangement. The girls could also switch seats, and this would yield another two possible arrangements. That gives four total, (C).

21. E There is a little formula that can be used, and you can draw up a Venn diagram if you like, but if you keep your head you can reason your way through this problem. If 52 students are in neither class, then 98 students are in algebra or geometry. The question states that "73 are in geometry and 62 are in algebra," so that would be a total of 73 + 62 = 135 students. Since this number is greater than the number (98) of students you found earlier, the difference between 135 and 98 must be the number of students enrolled in both algebra and geometry. This difference is 37 (135 − 98 = 37), choice (E).

Section 6

1. B In reference to the discovery of DNA, the passage states, *the study of life could now be performed with more abstract methods of analysis.* (B) makes the same point, using the same key word, while all the other choices either go beyond what the passage actually states (e.g. (A), the passage does not say that the study of lipids and proteins became irrelevant; (C) basically says the same thing) or bring in topics not mentioned in the passage (e.g. (D), Mendelian genetics is not mentioned in the passage).

2. E The passage contrasts "wet and dirty" study of lipids and proteins with the information-based study of DNA. In this sense "wet and dirty" involves intensive laboratory work with things like lipids and proteins. It is not *haphazard guessing* (A). Choice (E) states this correctly, also drawing on language in the passage (*information-based*).

3. D The passage says that Saunders was a writer on Western topics who was widely read in the past. (D) fits with this. (A) does not. The passage does not say anything like (B), (C), or (E). Thus (D) is the best choice.

4. A The passage reads, many of the groups who popularized rock and roll consciously were attempting to emulate the work of blues greats such as B. B. King. Choice (A) is an accurate paraphrase of the information given in the passage.

5. C *Antecedent* means coming before. Even if you don't know the word, you can use word analysis to figure out that it has something to do with before. Don't confuse *ante-* with *anti-* (against). You can eliminate (D) and (E). *Referent* is a synonym for antecedent only in grammatical usage. Eliminate (B). You are left with *antebellum*, meaning before the war, or *causal*, meaning causing. *Causal* is more specific and more logical. (C) is the answer.

6. C The passage begins by describing the Seneca Falls convention as the first organized attempt for woman's voting rights (read the first sentences of the passage to see this). AWSA and NWSA came after Seneca Falls. (D) and (E) refer to information provided in Passage 2. Choice (C) is the answer.

7. A The passage states that the Seneca Falls conference did not have an *immediate effect* because the nation became *embroiled* in issues related to the coming Civil War. Knowledge of the dates of the Civil War will help you avoid confusing it with World War I. It was the Civil War, (A), that pushed the woman's voting rights movement to the background of the national consciousness.

8. B Here it is best to go back to the passage and clarify in your own mind the distinctions drawn between the NWSA and the AWSA. The NWSA, which the question asks about, focused their efforts on federal and constitutional issues, whereas the AWSA focused on state-level issues. So (B) is the correct answer.

9. B Don't be distracted by the wrong answers. Without even reading the passage, you could guess that the conflict between two organizations was resolved when they combined. The answer is (B).

10. D The author of Passage 1 doesn't have a very strong opinion, so you can eliminate (A) and (E). Now you need to decide if the author's opinion, however subtle, is positive or negative. It seems positive. For example, the author describes the work of the NAWSA as *important*. Thus the correct answer will be positive. That eliminates (B) and (C). The answer is (D).

11. A The first question is to determine what the "ultimate victory of the woman's suffrage movement" is. The first paragraph of the second passage makes it clear the author views the passing of the amendment to the constitution as the "ultimate victory," and this occurred with Tennessee approving the amendment. So (A) is the answer.

12. C The *earliest* time that the second passage points to is the 1870s (the first passage refers to the Seneca Falls convention in 1848), and so (C) is the answer.

13. C The second passage describes "partial suffrage" as the right to, "vote in local affairs such as municipal elections, school board elections, or prohibition measures." All of the examples but (C) refer to local affairs. Choice (C) refers to something mentioned only in Passage 1 (which was, moreover, before the 1848 Seneca Falls convention).

14. B The second passage argues that the "partial suffrages" showed that woman could "responsibly and reasonably participate in a representative democracy." These examples made the reasoning of nonsuffragists, that woman were not fit to vote, difficult to maintain. Choice (B) correctly points to this same idea.

15. E To answer a question like this you have to clearly have in mind which passage discusses what. Neither passage mentions the number of the amendment that gave women the right to vote. The second passage mentions when the amendment became law in the first paragraph, so you can eliminate (A). The first passage mentions the Civil War in the first paragraph. The first passage mentions the leaders of NWSA in the second paragraph. The second passage is all about "partial suffrages," and you've confirmed this in question 14. The only possible answer is (E).

16. A Recall that the author of the second passage saw the "partial suffrages," the local successes of the woman's movement in the 1870s and 1880s, as crucial to the ultimate success of the movement. The first passage says that AWSA focused on state-level issues. Choice (A) states as much and is the best choice. NWSA was specifically interested in federal and constitutional issues, so (B) is factually incorrect. The author of passage two agrees that the constitutional amendment was the ultimate success of the suffrage movement, so he or she would not agree with (C). (D) also contradicts that view. (E) is more difficult to eliminate, but the author of Passage 2 doesn't mention any differences within the suffrage movement. Choice (A) is the best answer.

Section 7

1. This one is all about PEMDAS.

$$\begin{aligned}\left[2(3^2)^2 + (4 - 3(4))^2\right] &= 2(9)^2 + (4 - 12)^2 \\ &= \left[2(81) + (-8)^2\right] 162 + 64 \\ &= 162 + 64 \\ &= 226\end{aligned}$$

2. Remember when you multiply or divide an inequality by a negative, you switch the direction of the inequality sign:

$$\begin{aligned}22 - 3x &> 13 \\ 22 - 22 - 3x &> 13 - 22 \\ -3x &> -9 \\ \frac{-3x}{-3} &< \frac{-9}{-3} \\ x &< 3\end{aligned}$$

The only two positive integers less than 3 are 2 or 1. Either one is an acceptable answer.

3. The cost will include the initial charge and the minute rate times thirty, $0.40 + 0.06(30) = 0.40 + 1.80 = 2.20$.

4. A good, no-nonsense way to find the least common multiple (LCM) is to multiply both numbers by increasing positive integers until both multiply to the same number.

$18 \times 2 = 36$	$24 \times 2 = 48$
$18 \times 3 = 54$	$24 \times 3 = 72$
$18 \times 4 = 72$	$24 \times 4 = 96$
$18 \times 5 = 90$	$24 \times 6 = 120$
$18 \times 6 = 108$	$24 \times 6 = 144$
$18 \times 7 = 126$	
$18 \times 8 = 144$	

Both numbers multiply out to 72, so this is the answer. Creating these two tables would take a lot of time if you didn't have a calculator, but since you do, make the most of it.

5. If x is any negative number, then the inequality will hold true because the absolute value bars will knock the value up well over 2. If you don't see this, plug in some negative numbers.

Thinking positively, if $x > 5$ then the inequality is also true. The only remaining integers are 0–5. Plugging zero into the inequality, it still holds true. But if you plug 1–5 in, the inequality is not true. Thus any integer 1, 2, 3, 4, 5 is correct.

6. This problem works very much like a function machine. Take the number they give you and place it into the equation, then solve. For the eleventh term, k will be equal to 11, so

$$\frac{10(k+1)}{k-1} = \frac{10(11+1)}{11-1} = \frac{10(12)}{10} = \frac{120}{10} = 12$$

7. If you do not see the answer by visualizing the points, you can always use the formula for the midpoint. It is just the average of the coordinates (in this case, the y coordinates)

$$\frac{y_1 + y_2}{2} = \frac{2+6}{2} = \frac{8}{2} = 4.$$

8. You can use trigonometric functions to solve this problem, or you could use the Pythagorean theorem since this is a right triangle (the measure of the angles have to sum to 180 and you know the measures of two of the three angles, 40 and 50, sum to 90. This means the third angle must be 90.)

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 4^2 + \left(2\sqrt{5}\right)^2 &= c^2 \\ 16 + 20 &= c^2 \\ 36 &= c^2 \\ 6 &= c \end{aligned}$$

The answer is 6.

9. The mean is the average, so we have to add up all the numbers and divide by the total:

$$\frac{7+4+3+6+2+2}{6} = \frac{24}{6} = 4.$$

The median is the number in the middle if you line up all the numbers from greatest to least. Since there is an even number of numbers, the median will be the average of the two middle numbers, {2, 2, 3, 4, 6, 7}. The median then is the average of 3 and 4, or 3.5. The difference between the two is 0.5 or $\frac{1}{2}$.

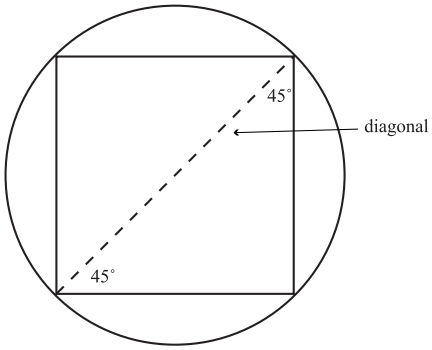
10. Draw this picture! Two lines that are perpendicular to the same line are parallel. To see this, draw one line perpendicular to another, and then draw a third line perpendicular to the second; it will be parallel to the first line). That means a and c are parallel, which implies they have the same slope, $\frac{2}{5}$.

11. This might appear complicated, but a few careful substitutions and you will have the answer. When, $y = 3$, $x = 5$ because $x = y + 2$.

Now you need to plug this value of x into the function,

$$f(x) = x^2 + 3$$
$$f(5) = 5^2 + 3 = 25 + 3 = 28$$

12. The first step is to sketch the inscribed square.



The sides of the square are $\sqrt{8}$ since the area is 8. You get this by working backward from the area of a square formula:

$$A = s^2$$
$$8 = s^2$$
$$\sqrt{8} = s$$
$$\sqrt{4 \times 2} = s$$
$$2\sqrt{2} = s$$

The longest straight line that originates and terminates on the circumference is the diagonal of the square. Now that you have the side of the square, you can find the length of its diagonal because two sides of the square and its hypotenuse make a 45-45-90 right triangle. The diagonal is the hypotenuse, so it will be $\sqrt{2}$ times greater than a side.

This means the diagonal of the square is:

$$\left(2\sqrt{2}\right)\left(\sqrt{2}\right) = 2\sqrt{4} = 2 \times 2 = 4.$$

13. Our range of numbers to meet the conditions is 1000 to 1198. The only way to meet the two conditions in the 1100's is to have the ones and units sum to 15 since with the two 1's (in the hundreds and thousands place) will make the sum 17. But this is impossible, since two numbers that are the same cannot sum to an odd number. Therefore, the answer must be in the 1000's. 1011 is far too less a sum of digits, and 1099 is too great, but not by much. Try 1088. It sums to 17.

Section 8

As you might expect, answers will vary. If possible, politely ask a teacher, fellow student, or some other person knowledgeable about formal essay writing to review your essay and provide feedback on ways in which the essay is commendable and on areas where it could be improved.

Scoring Worksheet

MATH				
	Number Correct	**Number Incorrect**	**=**	**Raw Score**
Section 2	_____	− (.25 × _____)	=	_____
Section 5	_____	− (.25 × _____)	=	_____
Section 7	_____	− (.25 × _____)	=	_____
CRITICAL READING				
Sections 1, 4, and 6	_____	− (.25 × _____)	=	_____
WRITING				
Section 3	_____	− (.25 × _____)	=	_____
Section 8	Go to www.petersons.com/satessayedge/ for instant online scoring and feedback.			

Score Charts

MATH

Raw Score	Math Scaled Score	Raw Score	Math Scaled Score
60	800	28	500
59	800	27	490
58	790	26	490
57	770	25	480
56	760	24	470
55	740	23	460
54	720	22	460
53	710	21	450
52	700	20	440
51	690	19	430
50	680	18	420
49	670	17	420
48	660	16	410
47	650	15	410
46	640	14	400
45	630	13	390
44	620	12	380
43	610	11	370
42	600	10	360
41	600	9	350
40	590	8	340
39	580	7	330
38	570	6	320
37	560	5	310
36	560	4	300
35	550	3	280
34	540	2	270
33	540	1	250
32	530	0	240
31	520	−1	220
30	510	−2	210
29	510	−3 and below	200

CRITICAL READING

Raw Score	Verbal Scaled Score	Raw Score	Verbal Scaled Score
78	800	37	510
77	800	36	510
76	800	35	500
75	790	34	500
74	780	33	490
73	770	32	490
72	760	31	480
71	750	30	480
70	740	29	470
69	730	28	460
68	720	27	460
67	710	26	450
66	700	25	450
65	700	24	440
64	690	23	440
63	680	22	430
62	670	21	420
61	670	20	410
60	660	19	410
59	650	18	400
58	640	17	390
57	640	16	380
56	630	15	380
55	620	14	370
54	610	13	360
53	610	12	360
52	600	11	350
51	600	10	340
50	590	9	330
49	590	8	320
48	580	7	310
47	570	6	300
46	570	5	290
45	560	4	270
44	550	3	260
43	550	2	250
42	540	1	240
41	540	0	230
40	530	−1	220
39	520	−2	210
38	520	−3 and below	200