

12^{10} , $12^{10} + 12^{10}$, $12^{10} + 12^{10} + 12^{10}$, ...

19. In the sequence above, the first term is 12^{10} and each term after the first is 12^{10} more than the preceding term. Which term in the sequence is equal to 12^{12} ?

(A) The 3rd term
(B) The 12th term
(C) The 24th term
(D) The 120th term
(E) The 144th term

20. A square with an area of 2 is inscribed in a circle. What is the area of the circle?

(A) π
(B) π^2
(C) 2π
(D) $2\sqrt{2}\pi$
(E) 4π

STOP

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



SECTION 4

Time — 25 minutes

24 Questions

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

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

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

Example:

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

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

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

1. Due to the ----- of architect Benjamin Banneker, the remarkable street plan for Washington, D.C., that had nearly been abandoned was ----- and carried out.
 - (A) artistry . . rejected
 - (B) persistence . . revived
 - (C) pessimism . . originated
 - (D) cautiousness . . postponed
 - (E) foresight . . ignored

2. Because marine algae indirectly remove atmospheric carbon dioxide, a major ----- in marine algae populations might result in ----- levels of carbon dioxide.

- (A) transformation . . perceptible
- (B) reduction . . elevated
- (C) explosion . . increased
- (D) decline . . stabilized
- (E) change . . uniform

3. Keats's poetry was called ----- by those critics who noted that he indulged in sensuous imagery and luxuriant diction.

- (A) voluptuous (B) imperious (C) sheepish
- (D) harmonious (E) pedantic

4. Even when offstage, the acting troupe exhibited the ----- behavior usually associated with histrionic temperaments.

- (A) pessimistic (B) torpid (C) exaggerated
- (D) judicious (E) ingenuous

5. Danielle was easily the most ----- of her classmates, rarely willing to compromise or even listen to others' pleas.

- (A) discreet (B) deferential (C) loquacious
- (D) obdurate (E) rapacious



The passages below are followed by questions based on their content; questions following a pair of related passages may also be based on the relationship between the paired passages. Answer the questions on the basis of what is stated or implied in the passages and in any introductory material that may be provided.

Questions 6-9 are based on the following passages.

Passage 1

Line One of the strangest and most enthralling aspects of
blogs (online journals) is just how intensely personal they
can be. People like me maintain personal blogs because
5 they like the idea that there's a place where a record of
their existence is kept—a house with an always-open door
where people who are looking for you can check on you,
compare notes with you, and tell you what they think
of you. Sometimes that house is messy, sometimes
horribly so. In real life, we wouldn't invite any passing
10 stranger into these situations, but the remove of the Internet
makes it seem OK.

Passage 2

Something about the personal blog makes me distinctly
uncomfortable. After several hours of reading these blogs,
I often feel sick, as if I've watched too many tell-all talk
15 shows on daytime television. I've learned too much I didn't
need to know about too many people's everyday lives—
lives without anything particularly extraordinary to
recommend them, except the bloggers' own sense of
importance. Some blogs make me feel guilty, as if I have
20 been looking at texts that are too personal and not intended
for me to see. But I must confess that when I find a blog I
like, I frequent the site daily, anxious for new entries.

6. The authors of both passages

- (A) criticize the development of a new technology
- (B) offer personal views of a contemporary practice
- (C) advocate participation in a creative enterprise
- (D) suggest unconventional modes of personal expression
- (E) mock common perceptions of a popular medium

7. Which generalization about personal blogs is supported by both passages?

- (A) Writers often find personal blogs tedious to produce.
- (B) The popularity of personal blogs is difficult to understand.
- (C) Many of the issues discussed in personal blogs can be uninteresting to readers.
- (D) Certain aspects of personal blogs are more acceptable on the Internet than they would be in real life.
- (E) Private details are often exposed on personal blogs.

8. The author of Passage 2 would most likely consider the "passing stranger" (lines 9-10, Passage 1) to be

- (A) an accurate characterization of a blog reader
- (B) an inviting distraction to a blog writer
- (C) an intrusion into the experience of reading a blog
- (D) an unrealistic representation of the dangers of blogs
- (E) a symbol of the fading popularity of blogs

9. Which statement best describes the relationship between the two passages?

- (A) The author of Passage 1 views personal blogs as unique and individual, whereas the author of Passage 2 is interested in their broader cultural significance.
- (B) The author of Passage 1 is a self-effacing blogger, whereas the author of Passage 2 believes that writing blogs is a self-aggrandizing pursuit.
- (C) The author of Passage 1 finds the intimacy of personal blogs compelling, whereas the author of Passage 2 is ambivalent about that intimacy.
- (D) The author of Passage 1 asserts that many blogs are well written, whereas the author of Passage 2 is embarrassed about the poor literary quality of many blogs.
- (E) The author of Passage 1 argues that most blogs consider overarching social issues, whereas the author of Passage 2 feels that too many blogs focus on mundane minutiae.



Questions 10-15 are based on the following passage.

This passage is from a novel about an aspiring young writer living in London in 1950.

One day in the middle of the twentieth century, I sat in an old graveyard which had not yet been demolished, in the Kensington area of London, when a young policeman stepped off the path and came over to me. He was shy and smiling, he might have been coming over the grass to ask me for a game of tennis. He only wanted to know what I was doing but plainly he didn't like to ask. I told him I was writing a poem, and offered him a sandwich which he refused as he had just had his dinner, himself. He stopped to talk awhile, then he said good-bye, the graves must be very old, and that he wished me good luck and that it was nice to speak to somebody.

This was the last day of a whole chunk of my life but I didn't know that at the time. I sat on the stone slab of some Victorian grave writing my poem as long as the sun lasted. I lived nearby in a bed-sitting-room with a gas fire and a gas ring operated by pennies and shillings in the slot, whichever you preferred or had. My morale was high. I needed a job, but that, which should have been a depressing factor when viewed in cold blood, in fact simply was not. Neither was the swinishness of my landlord, a Mr. Alexander, short of stature. I was reluctant to go home lest he should waylay me. I owed him no rent but he kept insisting that I should take a larger and more expensive room in his house, seeing that I had overcrowded the small single room with my books, my papers, my boxes and bags, my food-stores and the evidence of constant visitors who stayed to tea or came late.

So far I had stood up to the landlord's claim that I was virtually living a double-room life for single-room pay. At the same time I was fascinated by his swinishness. Tall Mrs. Alexander always kept in the background so far as the renting of rooms was concerned, determined not to be confused with a landlady.

Her hair was always glossy black, new from the hairdresser, her nails polished red. She stepped in and out of the house with a polite nod like another, but more superior, tenant. I fairly drank her in with my mind while smiling politely back. I had nothing whatsoever against these Alexanders except in the matter of their wanting me to take on a higher-priced room. If he had thrown me out I would still have had nothing much against them, I would mainly have been fascinated. In a sense I felt that the swine Alexander was quite excellent as such, surpassingly hand-picked. And although I wanted to avoid him on my return to my lodging I knew very well I had something to gain from a confrontation, should it happen.

10. The policeman in the first paragraph is represented primarily as

- (A) talkative
- (B) prying
- (C) confident
- (D) polite
- (E) overbearing

11. Lines 13-14 ("This was . . . time") are intended primarily to

- (A) foreshadow future developments
- (B) create a mood of melancholy
- (C) highlight the narrator's inexperience
- (D) exemplify the narrator's colloquial language
- (E) hint at the narrator's previous misfortunes

12. In context, the phrase "in cold blood" (line 20) is best understood to mean

- (A) maliciously
- (B) rationally
- (C) in a premeditated fashion
- (D) with paralyzing fear
- (E) with heartless detachment

13. The description of Mrs. Alexander in lines 32-38 ("Tall . . . tenant") suggests that the narrator views her as

- (A) brooding and distant
- (B) proud and aloof
- (C) arrogant and ill-tempered
- (D) judgmental and snide
- (E) boring and unintelligent



14. In context, the statement in line 38 ("I fairly . . . mind") indicates that the narrator

- (A) feels connected intellectually to Mrs. Alexander
- (B) wishes she could be like Mrs. Alexander
- (C) feels self-conscious in Mrs. Alexander's presence
- (D) shuns Mrs. Alexander's company
- (E) is captivated by Mrs. Alexander's style

15. The narrator's attitude toward her situation is best described as

- (A) incredulous
- (B) apprehensive
- (C) contented
- (D) ambivalent
- (E) self-congratulatory



Questions 16-24 are based on the following passage.

This passage is adapted from a book written by a physicist in 2004.

Although biological mechanisms do not work with the accuracy or stability of modern clocks, a sense of time and its rhythm is built into the functioning of the human body. Our heart, with its beating pulse, is the clocklike internal rhythm of which we are most aware. In his discovery of the law of the pendulum, which turned out to have the most profound effect on all later time-measuring devices, Galileo used—if legend can be believed—his own pulse beat as the test. There are, however, other biological timekeepers that play important roles in our lives. These inner clocks are generally very regular, but they can also be “reset” and will fall in step with a shifted rhythm. Even after we take a long flight across the Atlantic or Pacific, our lack of synchronization with the local time slowly disappears. The technical term, introduced in 1959, for the internal timer that keeps track of this 24-hour periodicity and retains it even in the absence of external cues is the circadian system (from the Latin *circa* for “about” or “approximately” and *dies* for “day”). Though known to biologists for over 200 years, biological clocks have been the subject of intensive research during the last half century.

The first human physiological variables that scientists observed to be governed by a circadian rhythm were pulse rate and body temperature. Even if a person rests in bed and fasts, his or her deep-body temperature will vary by almost one degree centigrade between its low in the early morning hours and a high late in the afternoon. More than 100 additional physiological and psychological variables are also subject to diurnal periodicities. For example, the speed with which children can do computations varies by about 10 percent between its slowest value in the early morning to a high before noon, dropping to a nadir in the early afternoon, rising again to a peak at about 6 o'clock and then falling off in the evening. This pattern was first measured in 1907 and replicated a half century later.

The extremely controversial question that arose immediately was to what extent this human circadian rhythm was an autonomous mechanism rather than a simple response to external signals, such as changes in the level of light, the times of meals, or social interactions with our surroundings. It has not been easy to find the answer, but careful laboratory experiments have led to the definite conclusion that our body contains an autonomous timekeeper. Individuals who volunteered to be kept in artificial isolation with no time cues of any kind also helped find the answer. In 1962 a French researcher spent two months in a cold cave, 375 feet underground in the Alps. The Frenchman called his aboveground supporters by telephone whenever he ate, went to sleep, and woke, and he recorded in detail his thoughts and impressions of the passage of time. He and all such explorers found themselves subject to definite internal time signals. It

turned out, however, that the measured period of their bodily variables (all of which were consistent with one another), as well as their subjective impression of the time of day and their periods of sleep and waking, was slightly longer than 25 hours. By the time they emerged from their prolonged isolation, their internal timer was many hours out of phase with the external 24-hour clock.

Today, the autonomy of biological clocks is a well-established fact. Though running at a steady rate, our internal clock is “slow” by about an hour per day, but since it is continually automatically reset by cycles of light and dark, under normal circumstances the loss of time is not cumulative; our internal clock is entrained with the rhythm of the Sun.

16. The primary purpose of the passage is to

- (A) describe a phenomenon and how it came to be understood
- (B) discuss a problem and several possible solutions
- (C) challenge a widely accepted point of view
- (D) present a new theory and some ways of testing it
- (E) explain the reasoning behind a discredited theory

17. In line 1, “work” most nearly means

- (A) operate
- (B) succeed
- (C) strive
- (D) produce
- (E) influence

18. The statement between the dashes in line 8 (“if . . . believed”) primarily serves to

- (A) present a hypothesis
- (B) explain an assertion
- (C) qualify a statement
- (D) reaffirm a historical account
- (E) provide necessary evidence

19. The reference to a “long flight” (line 13) supports the idea that

- (A) humans adjust to the natural rhythms around them
- (B) humans should avoid unnecessary long-distance travel
- (C) airplane flights are fatiguing for most people
- (D) trans-Pacific flights take longer than trans-Atlantic flights
- (E) not all people synchronize with the local time



20. The sentence in lines 34-35 ("This . . . later") serves primarily to
- (A) acknowledge the existence of a paradox
 - (B) support the validity of an observation
 - (C) describe the details of a finding
 - (D) challenge the results of an experiment
 - (E) emphasize the need for further research
21. Which of the following best expresses the "controversial question" referred to in line 36 ?
- (A) Can the existence of human circadian rhythms be proved?
 - (B) How complex are human circadian rhythms?
 - (C) Has sufficient research been conducted on human circadian rhythms?
 - (D) Why do human circadian rhythms fluctuate so erratically?
 - (E) How independent of outside influences are human circadian rhythms?
22. The "French researcher" (line 46) probably chose the location he did primarily to
- (A) eliminate any effects of the Sun
 - (B) enhance his ability to sleep soundly
 - (C) restrict his access to food and water
 - (D) ensure disruption to his internal clocks
 - (E) limit his communication with other humans
23. Based on the information in the passage as a whole, the "loss of time" would most likely be "cumulative" (lines 64-65) for a person who
- (A) had an extremely irregular pulse rate
 - (B) slept just five hours a night on a regular basis
 - (C) fasted long enough to cause a reduction in deep-body temperature
 - (D) remained in a soundproof, lightproof isolation chamber for several weeks
 - (E) flew from New York City to Tokyo, then after several weeks flew back to New York
24. The tone of the passage is best described as
- (A) argumentative
 - (B) pessimistic
 - (C) concerned and inquisitive
 - (D) playful and irreverent
 - (E) objective and instructive

STOP

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



SECTION 6

Time — 25 minutes

35 Questions

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

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

The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

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

EXAMPLE:

Laura Ingalls Wilder published her first book and she was sixty-five years old then.

- (A) and she was sixty-five years old then
- (B) when she was sixty-five
- (C) at age sixty-five years old
- (D) upon the reaching of sixty-five years
- (E) at the time when she was sixty-five

(A) ● (C) (C) (E)

1. After she won a gold medal in figure skating at the 1956 Olympic Games, Tenley Albright attended medical school and becoming a surgeon.

- (A) school and becoming
- (B) school and became
- (C) school, also became
- (D) school, she became
- (E) school; also becoming

2. In his *Star Wars* films, director George Lucas is a contemporary mythmaker, plus being a master of special effects.

- (A) Lucas is a contemporary mythmaker, plus being
- (B) Lucas, a contemporary mythmaker, moreover
- (C) Lucas is a contemporary mythmaker as well as
- (D) Lucas, who is a contemporary mythmaker and also
- (E) Lucas is a contemporary mythmaker, he is also

3. Because of geothermal changes beneath Old Faithful, the frequency and duration of the geyser's eruptions are now more predictable.

- (A) eruptions are now more predictable
- (B) eruptions, they are now more predictable
- (C) eruptions are predicted more easier now
- (D) eruptions being easier to predict than before
- (E) eruptions, they can now be predicted more easily

4. Founded in 1919, the aim of the Bauhaus School was to create a revolutionary modern style that would unite art and mass production.

- (A) aim of the Bauhaus School was
- (B) aim of the Bauhaus School having been
- (C) Bauhaus School, whose aim was
- (D) Bauhaus School aiming
- (E) Bauhaus School aimed



5. Coleman Hawkins is often called the "father of the tenor saxophone" on account of he was the first to realize the instrument's expressive powers.
- (A) saxophone" on account of he was
 - (B) saxophone" because he was
 - (C) saxophone" due to him being
 - (D) saxophone," which he was
 - (E) saxophone," he was
6. The ship will not leave port until every one of the crew members have been examined by a physician and given a clean bill of health.
- (A) have been
 - (B) has been
 - (C) had been
 - (D) are
 - (E) were
7. It appears that either Jane or Marek will be elected to be presidents of the student union.
- (A) to be presidents
 - (B) as presidents
 - (C) presidents
 - (D) for president
 - (E) president
8. Apparently honoring the actor's desire for a flattering biography, there is no mention by the author of any of the scandals in which her subject was involved.
- (A) there is no mention by the author of any of the scandals in which her subject was involved
 - (B) none of the scandals in which her subject was involved is mentioned by the author
 - (C) none of the scandals in which her subject was involved are mentioned by the author
 - (D) the author does not mention any of the scandals in which her subject was involved
 - (E) the author mentions none of the scandals in which her subject were involved
9. An odd friendship in certain respects, she being an outdoor enthusiast and he a dedicated bookworm.
- (A) An odd friendship
 - (B) As an odd friendship
 - (C) Their friendship being odd
 - (D) Theirs was an odd friendship
 - (E) Having a friendship that was somewhat odd
10. Each of the men who attended the meeting were suspected to be a spy.
- (A) were suspected to be a spy
 - (B) were suspected to be spies
 - (C) were suspected of being spies
 - (D) was suspected of being spies
 - (E) was suspected of being a spy
11. The island of Madagascar, off the coast of Africa, is the habitat of more than 200,000 species of plants and animals, many are not found anywhere else on the planet.
- (A) animals, many are not found anywhere
 - (B) animals; many, not found anywhere
 - (C) animals; of which many are not found anywhere
 - (D) animals, many found nowhere
 - (E) animals, finding many nowhere



The following sentences test your ability to recognize grammar and usage errors. Each sentence contains either a single error or no error at all. No sentence contains more than one error. The error, if there is one, is underlined and lettered. If the sentence contains an error, select the one underlined part that must be changed to make the sentence correct. If the sentence is correct, select choice E. In choosing answers, follow the requirements of standard written English.

EXAMPLE:

The other delegates and him immediately
 A B C
 accepted the resolution drafted by the
 D
 neutral states. No error
 E

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

12. This film has earned more money from ticket
 A B C
 sales than have its closest competitor for the
 D
 Best Documentary Feature Film Award. No error
 E

13. Dr. Ling strongly encouraged each of us contacting
 A B C
 our federal and state representatives and urge them
to increase funding for elementary school music
 D
 programs. No error
 E

14. In the years following the Second World War,
 A
 as millions of soldiers returned to civilian life,
 the demand for housing will cause a massive
 B C
expansion of suburbs. No error
 D E

15. Because they build nests on telephone poles
 A B
 as readily as they do in trees, ospreys adapting
 C D
 well to various environments. No error
 E

16. Whiptails, the more speedier of lizards, are
 A
 remarkable creatures because in thirteen
 B
of the known species the females reproduce without
 C D
 mating with males. No error
 E

17. Scientists have discovered that walnut trees respond to
 A
 environmental stresses such as drought by producing
 B C
 significant amounts of a substance similar to aspirin.
 D
No error
 E



18. For our hike, my two companions and I had chose
to walk along the Appalachian Trail, one of the
oldest and best-loved hiking paths in the
United States. No error
19. When people see Lake Michigan for the first time,
he or she may think that it looks more like
an ocean than a lake. No error
20. Teeming with hundreds of species of tropical fish, the
clear waters of the Caribbean Sea provide a paradise
for scuba divers. No error
21. The museum's latest exhibition, featuring the works
of several relatively young artists, have been praised
in reviews by influential art critics. No error
22. The proposed environmental legislation would devote
billions of dollars in federal grants to conservation
activities such as acquiring new public lands,
preserving coastal habitats, and to establish urban
parks. No error
23. Though the island was formed by volcanic action
long ago, volcanic activity still threatens its
inhabitants occasionally. No error
24. Damselflies closely resemble dragonflies except that
when at rest an adult damselfly holds its wings parallel
to the body, while a dragonfly holds theirs
perpendicular to the body. No error
25. Each girl in my class wanted to have a
quinceañera—an elaborate party with plenty of food
and dancing—to celebrate her fifteenth birthday.
- No error



26. Experts who decipher ancient written languages

A

report that the Indus civilization's script is

B

more difficult to decode than other civilizations.

C

D

No error

E

27. Although both birds are known for their distinctive

A

B

songs, but the rufous songlark has a sweeter song

C

than has the brown songlark. No error

D

E

28. Because sound waves travelfaster in liquids

A

B

than they do in gases, the speed of sound in water

C

is greater than that of sound in the air. No error

D

E

29. Mary Whiton Calkins was an imminent psychologist

A

and philosopher whose research focused on such

B

C

topics as memory, consciousness, and dreams.

D

No error

E

Directions: The following passage is an early draft of an essay. Some parts of the passage need to be rewritten.

Read the passage and select the best answers for the questions that follow. Some questions are about particular sentences or parts of sentences and ask you to improve sentence structure or word choice. Other questions ask you to consider organization and development. In choosing answers, follow the requirements of standard written English.

Questions 30-35 refer to the following passage.

(1) The word "dinosaur" is derived from two Greek words meaning "terrifying lizard." (2) This fact might therefore lead you to think that today's reptiles—including lizards—are descended from dinosaurs. (3) Modern reptiles are probably not directly related to the dinosaurs. (4) Instead, it is birds, not reptiles, that most scientists now think are the dinosaurs' true descendants. (5) Some even say that birds *are* dinosaurs—dinosaurs as they have evolved over millions of years. (6) That claim may sound incredible. (7) It is based on extensive fossil evidence.

(8) A definite evolutionary connection between birds and dinosaurs was first uncovered in 1861. (9) The fossil was the petrified remains of an animal that in many respects resembled a small, winged dinosaur. (10) There was, similarly, one astonishing difference between this fossil and any dinosaur fossil previously found. (11) The newly discovered animal's body was covered with fully developed feathers. (12) Scientists gave the creature the name *Archaeopteryx*, which means "ancient wing" in Greek, and declared it a transitional species between dinosaurs and birds. (13) Ancient Greek is a language that lends itself to forming logical compound words such as these.

(14) In the years since that discovery, scientists have unearthed other unique fossils. (15) These fossils show that dinosaurs and birds share many common skeletal features. (16) They reveal that several species of dinosaurs had what look like primitive feathers. (17) They indicate that some dinosaurs brooded over their nests, much as chickens do. (18) There is even fossil evidence that a few dinosaurs had four-chambered hearts. (19) That means that they may have been warm-blooded—just like birds but unlike modern reptiles, which are all cold-blooded.



30. In context, which of the following would be best to place at the beginning of sentence 3 (reproduced below) ?

Modern reptiles are probably not directly related to the dinosaurs.

- (A) In any case,
- (B) It is believed that
- (C) As it turns out, though,
- (D) They now say that
- (E) Moreover, it appears that

31. In context, which is the best way to revise and combine sentences 6 and 7 (reproduced below) ?

That claim may sound incredible. It is based on extensive fossil evidence.

- (A) As incredible as that claim may sound, it is based on extensive fossil evidence.
- (B) That claim may sound incredible, but he based it on extensive fossil evidence.
- (C) The claim is based on extensive fossil evidence, but they sound incredible to us.
- (D) That claim sounds incredible; it will need to be based on extensive fossil evidence.
- (E) Based on extensive fossil evidence, that claim may yet have sounded incredible.

32. In context, which of the following would be the most effective revision of the underlined portion of sentence 10 (reproduced below) ?

There was, similarly, one astonishing difference between this fossil and any dinosaur fossil previously found.

- (A) obviously
- (B) however
- (C) they claimed
- (D) therefore
- (E) in retrospect

33. In context, which is the best way to deal with sentence 13 (reproduced below) ?

Ancient Greek is a language that lends itself to forming logical compound words such as these.

- (A) Insert it immediately after sentence 1.
- (B) Delete it from the passage.
- (C) Change "is" to "was".
- (D) Change "lends" to "lent".
- (E) Change "these" to "Archaeopteryx".

34. In context, which of the following would be the most effective revision of the underlined portion of sentence 14 (reproduced below) ?

In the years since that discovery, scientists have unearthed other unique fossils.

- (A) many others
- (B) many interesting fossils
- (C) more of these kinds of fossils
- (D) other fossils that confirm the link between dinosaurs and birds
- (E) fossils that provide evidence disproving these early findings

35. Where in the passage would the following sentence best be inserted?

It was then that a worker in a German limestone quarry accidentally discovered an unusual fossil.

- (A) Immediately before sentence 5
- (B) Immediately before sentence 9
- (C) Immediately before sentence 11
- (D) Immediately before sentence 12
- (E) Immediately before sentence 15

STOP

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

SECTION 7

Time — 25 minutes

18 Questions

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

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

Notes

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

Reference Information

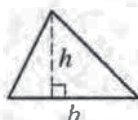


$$A = \pi r^2$$

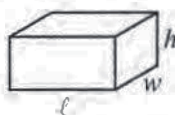
$$C = 2\pi r$$



$$A = \ell w$$



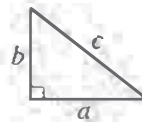
$$A = \frac{1}{2}bh$$



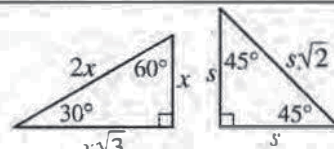
$$V = \ell wh$$



$$V = \pi r^2 h$$



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



Special Right Triangles

The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

1. In the xy -plane, three of the four vertices of a square have coordinates $(2, 4)$, $(5, 4)$, and $(2, 1)$. What are the coordinates of the fourth vertex of the square?
 (A) $(0, 0)$
 (B) $(1, 2)$
 (C) $(4, 5)$
 (D) $(5, 1)$
 (E) $(5, 8)$
2. If 5 times t is decreased by 8, which of the following represents the result?
 (A) $8 - 5t$
 (B) $5t - 8$
 (C) $5(t - 8)$
 (D) $5(8 - t)$
 (E) $8(t - 5)$

GO ON TO THE NEXT PAGE









3. If f is a function and $f(3) = 5$, which of the following CANNOT be the definition of f ?

(A) $f(x) = x - 2$
 (B) $f(x) = x + 2$
 (C) $f(x) = 8 - x$
 (D) $f(x) = 2x - 1$
 (E) $f(x) = 3x - 4$

5. The measures of the angles of $\triangle ABC$ are a° , b° , and c° . If $a + b = 110$ and $b + c = 105$, what is the value of b ?

(A) 30
 (B) 35
 (C) 40
 (D) 45
 (E) 50

PROJECTED SENIOR POPULATION OF THE UNITED STATES BY AGE AND GENDER IN 2050

Age Bracket	Male	Female
85 and over		
75-84		
65-74		
55-64		

 represents 4 million people.

4. According to the pictogram above, in 2050 the male population in which age bracket is projected to make up two-fifths of the total population in that age bracket?

(A) 55-64
 (B) 55-74
 (C) 65-74
 (D) 75-84
 (E) 85 and over

6. If S is the set of prime numbers between 1 and 20 and T is the set of all positive multiples of 3 or 5, how many numbers appear in both S and T ?

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

7. If $a^2 - 2ab + b^2 = ab$, then which of the following is equivalent to $a^2 + b^2$?

(A) $3ab$
(B) ab
(C) 0
(D) $-ab$
(E) $-3ab$

1

2

3

4

5

8. The letters A , B , C , D , and E are to be arranged in the boxes above, one in each box, in the following way. A must be between C and D , B must be next to E , and C cannot be in the first or fifth positions. How many different arrangements of these letters are possible?

(A) One
(B) Two
(C) Four
(D) Six
(E) Eight

GO ON TO THE NEXT PAGE

Directions: For Student-Produced Response questions 9-18, use the grids at the bottom of the answer sheet page on which you have answered questions 1-8.

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

Answer: $\frac{7}{12}$

Write answer in boxes. →

Grid in result. →

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

← Fraction line

Answer: 2.5

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

← Decimal point

Answer: 201
Either position is correct.

	2	0	1
	•	•	•
	0	0	0
1	1	•	1
2	•	2	2
3	3	•	3
4	4	•	4

	2	0	1
	•	•	•
	0	0	0
1	1	•	1
2	•	2	2
3	3	•	3
4	4	•	4

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

- Mark no more than one circle in any column.
- Because the answer sheet will be machine-scored, you will receive credit only if the circles are filled in correctly.
- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- No question has a negative answer.
- **Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or 7/2. (If $\frac{31}{2}$ is gridded, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)

- **Decimal Answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid. For example, if you obtain an answer such as 0.6666..., you should record your result as .666 or .667. A less accurate value such as .66 or .67 will be scored as incorrect.

Acceptable ways to grid $\frac{2}{3}$ are:

	2	/	3
	•	•	•
	0	0	0
1	1	•	1
2	•	2	2
3	3	•	•
4	4	•	4
5	5	•	5
6	6	•	6

	.	6	6	6
	•	•	•	•
	0	0	0	0
1	1	•	1	1
2	2	•	2	2
3	3	•	3	3
4	4	•	4	4
5	5	•	5	5
6	•	6	6	6

	.	6	6	7
	•	•	•	•
	0	0	0	0
1	1	•	1	1
2	2	•	2	2
3	3	•	3	3
4	4	•	4	4
5	5	•	5	5
6	•	6	6	6

9. At a certain camp, the counselor-to-camper ratio is 2 to 9. If the camp has 18 counselors, how many campers does it have?

10. If $\frac{3}{4}x = \frac{3}{4}$, what is the value of $\frac{3}{4} + x$?

GO ON TO THE NEXT PAGE