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SAT Practice Test PDF

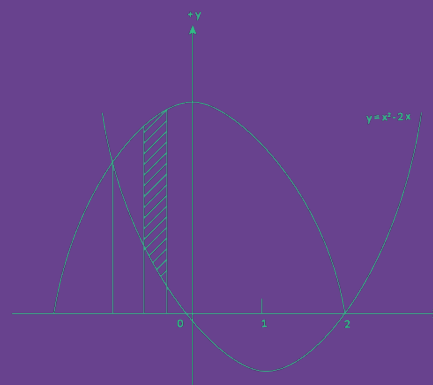
What's included:

Full-length SAT Practice Test

- Reading Test
- Writing and Language Test
- Math - No Calculator Test
- Math - Calculator Test

Free Text and Video Explanations

Printable Bubble Sheet



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Hello!

Welcome to an important step in your SAT prep! This full-length SAT Practice Test PDF contains 154 of Magoosh's highest-quality, student-tested practice questions. Taken from our [premium online SAT prep](#), these questions have been adapted to mimic the official SAT exam that you will encounter on test day...with one key difference.

What's the difference? Well, at the end of this PDF, you will find an answer key and a guide to grading your practice test. That's pretty normal. **But, you will also find [a link to text and video explanations](#) that show you how to solve every single question in this practice test.**

In these explanations, our SAT experts walk you through each question step-by-step. They explain:

- Which concept the question or problem is testing.
- Which strategies you can use to answer the question quickly and correctly.
- Which answer choices are trying to trick you (and how to avoid those traps!).

You sure won't find that in a typical SAT practice test!

These explanations will help you take your SAT prep to the next level. Because it's one thing to take a practice test and call it a day—but if you can learn from your mistakes, then you're setting yourself up to do better when it really counts.

Let's Get Started!

Taking a timed, full-length practice test is one of the best ways to prepare yourself for the real SAT. Mimicking test-like conditions will help improve your stamina, pacing, and understanding of your personal strengths and weaknesses.

While you may choose to take this test online (and save some trees while you're at it), remember that the official SAT exam is paper-based. We've made this PDF printable so that you can print it out and take it like the official exam if you want—it's totally up to you!

Here's What to Expect on the Following Pages:

- A full-length SAT practice test, in the style of the most current version of the SAT
 - Reading Test (65 Minutes, 52 Questions)
 - Writing and Language Test (35 Minutes, 44 Questions)
 - Math - No Calculator (25 Minutes, 20 Questions)
 - Math - Calculator (35 Minutes, 44 Questions)
- An answer key
- Information on grading your test
- [Links to text and video explanations](#) for every single question

What You'll Need to Take the Test:

- A pencil
- A timer
- An answer sheet to record your answers
 - You will find answer sheets at the end of this PDF. Print them out so that you can practice bubbling your answers, as you will on test day.

Practice Test Tips:

- If you'd like to use this practice test as part of your study schedule, you can substitute it for one of the practice tests in our SAT Study Schedules here:
 - [One Week SAT Study Schedule](#)
 - [One Month SAT Study Schedule](#)
 - [Two Month SAT Study Schedule](#)
 - [Three Month SAT Study Schedule](#)
- Set aside approximately four hours of uninterrupted time to take the practice test.
- Try to take the entire practice test in one sitting.
- Give yourself a brief, 10-minute break after the Reading test.
- Give yourself a brief, five-minute break after the Math (No Calculator) test.
- Take the test in a quiet place where you won't be distracted.
- Mimic test day conditions by turning off your phone and leaving it in another room.
- Use a countdown timer and remember to reset it for each test.
- Eat a [healthy, energizing snack](#) before taking the practice test.
- After the test, check your answers and make note of any questions you missed.
- Watch the explanation video for every question you get wrong, so that you don't repeat the same mistakes on test day!
- Visit sat.magoosh.com to sign up for Magoosh SAT Prep and gain access to more practice questions.

Want more tips and tricks? Learn [how to stage the perfect SAT practice exam](#)!

Good luck!

Check out Magoosh SAT Test Prep



The test begins on the next page. Ready?

Reading Test

65 minutes, 52 questions

Turn to Section 1 of your answer sheet to answer the questions in this section.

DIRECTIONS

Each passage or pair of passages below is followed by a number of questions. After reading each passage or pair, choose the best answer to each question based on what is stated or implied in the passage or passages and in any accompanying graphics (such as a table or graph).

Questions 1-10 are based on the following passage.

Soon after this I ceased to take lessons of Pokrovski. Even now he thought me a child, a raw schoolgirl, as much as he did Sasha; and
Line this hurt me extremely, seeing that I had done
5 so much to atone for my former behavior. Of my efforts in this direction no notice had been taken, and the fact continued to anger me more and more.

One evening, when my mother was sitting
10 in Anna Thedorovna's room, I crept on tiptoe to Pokrovski's apartment, in the belief that he was not at home. Some strange impulse moved me to do so. True, we had lived cheek by jowl with one another; yet never once had I caught
15 a glimpse of his abode. Consequently my heart beat loudly—so loudly, indeed, that it seemed almost to be bursting from my breast. On entering the room I glanced around me with tense interest. The apartment was very poorly
20 furnished, and bore few traces of orderliness. On table and chairs there lay heaps of books; everywhere were books and papers. Then a strange thought entered my head, as well as, with the thought, an unpleasant feeling of

25 irritation.

It seemed to me that my friendship, my heart's affection, meant little to him, for he was well-educated, whereas I was stupid, and had learned nothing, and had read not a
30 single book. So I stood looking wistfully at the long bookshelves where they groaned under their weight of volumes. I felt filled with grief, disappointment, and a sort of frenzy. I felt that I must read those books, and decided to
35 do so—to read them one by one, and with all possible speed. Probably the idea was that, by learning whatsoever he knew, I should render myself more worthy of his friendship. So, I made a rush towards the bookcase nearest
40 me, and, without stopping further to consider matters, seized hold of the first dusty tome upon which my hands chanced to alight, and, reddening and growing pale by turns, and trembling with fear and excitement, clasped
45 the stolen book to my breast with the intention of reading it by candle light while my mother lay asleep at night.

But how vexed I felt when, on returning to our own room, and hastily turning the
50 pages, only an old, battered worm-eaten Latin

work greeted my eyes! Without loss of time I retraced my steps. Just when I was about to replace the book I heard a noise in the corridor outside, and the sound of footsteps approaching. Fumblingly I hastened to complete what I was about, but the tiresome book had become so tightly wedged into its row that, on being pulled out, it caused its fellows to close up too compactly to leave any place for their comrade. To insert the book was beyond my strength; yet still I kept pushing and pushing at the row. At last the rusty nail which supported the shelf (the thing seemed to have been waiting on purpose for that moment!) broke off short; with the result that the shelf descended with a crash, and the books piled themselves in a heap on the floor! Then the door of the room opened, and Pokrovski entered!

I must here remark that he never could bear to have his possessions tampered with. Woe to the person, in particular, who touched his books! Judge, therefore, of my horror when books small and great, books of every possible shape and size and thickness, came tumbling from the shelf, and flew and sprang over the table, and under the chairs, and about the whole room. I would have turned and fled, but it was too late. "All is over!" thought I. "All is over! I am ruined, I am undone! Here have I been playing the fool like a ten-year-old child! What a stupid girl I am! The monstrous fool!"

Indeed, Pokrovski was very angry. "What? Have you not done enough?" he cried. "Are you not ashamed to be for ever indulging in

such pranks? Are you NEVER going to grow sensible?" With that he darted forward to pick up the books, while I bent down to help him.

"You need not, you need not!" he went on. "You would have done far better not to have entered without an invitation."

Next, a little mollified by my humble demeanor, he resumed in his usual tutorial tone—the tone which he had adopted in his new-found role of preceptor: "When are you going to grow steadier and more thoughtful? Consider yourself for a moment. You are no longer a child, a little girl, but a maiden of fifteen."

Then, with a desire (probably) to satisfy himself that I was no longer a being of tender years, he threw me a glance—but straightway reddened to his very ears. This I could not understand, but stood gazing at him in astonishment. Presently, he straightened himself a little, approached me with a sort of confused expression, and haltingly said something—probably it was an apology for not having perceived that I was now a grown-up young person.

1. The central problem the narrator identifies in this passage is that
 - A) her tutor does not consider her an equal.
 - B) she has too little education to make her way in the world.
 - C) her former friend has become estranged.
 - D) she needs to return a stolen book.

2. How does the narrator describe Pokrovski's home?
- A) Orderly and lined with tidy bookshelves.
 - B) Lavish and full of hoarded treasures.
 - C) Spooky and sinister.
 - D) Dusty and unorganized.
3. As it is used in line 6, "in this direction" most nearly means
- A) having a definite purpose.
 - B) moving toward a place.
 - C) under specific control.
 - D) pointing to this idea.
4. Over the course of the passage, the narrator's attitude shifts from
- A) annoyance to malevolence.
 - B) resentment to embarrassment.
 - C) admiration to disillusionment.
 - D) indignation to condescension.
5. As it is used in line 71, to "bear" most nearly means
- A) endure.
 - B) convey.
 - C) deliver.
 - D) accept.
6. Pokrovski reacts to the narrator's effort to help him gather the fallen books by
- A) demanding she complete the task as repayment.
 - B) pretending to be possessive about his books.
 - C) reminding her that she had already done the damage.
 - D) becoming embarrassed and beginning to blush.
7. Which choice provides the best evidence for the answer to the previous question?
- A) Lines 70-71 ("I must...with.")
 - B) Lines 84-86 ("Are you...pranks?")
 - C) Lines 90-91 ("You would...invitation.")
 - D) Lines 100-103 ("Then, with...ears.")
8. What does the narrator indicate caused her to feel she "must read those books" (line 34)?
- A) A sudden fit of insanity.
 - B) The desire for companionship.
 - C) Competition between her and Pokrovski.
 - D) The lack of time she had available.
9. Which choice provides the best evidence for the answer to the previous question?
- A) Lines 30-32 ("So I...volumes.")
 - B) Lines 32-33 ("I felt...frenzy.")
 - C) Lines 33-36 ("I felt...speed.")
 - D) Lines 36-38 ("Probably the...friendship.")
10. After Pokrovski threw a glance at the narrator (line 102), he immediately
- A) became too agitated to speak.
 - B) apologized for being possessive.
 - C) began to blush profusely.
 - D) reminded her to act her age.

Questions 11-21 are based on the following passage.

Arvo Part's famous musical composition *Cantus in Memoriam Benjamin Britten* begins and ends in silence. After three beats of stillness, one musician rings a bell three times with the slow solemnity of a death toll. The sounds of silence and death give way to the pure voice of strings which flows along in their wake. After a sublime, sorrowful opening in A minor, the violin beckons the warmer C major scale into the pulse of the piece. The strings follow one another on a quest for the deepest note, until finally each holds a long, steady low C, then breaks into silence. It is just one of Part's modern compositions in the classical style, and it perfectly reveals the man and his music.

Born in Estonia in 1935, the young Arvo had no musical instrument in the house except a broken piano. The middle section where most music is played barely made a sound, leading the boy to experiment with the less used notes at the extreme ends of the keyboard. Some have suggested that the intense contrasts in his later compositions may reflect these early explorations. He began formally studying music in 1954, playing in the military band for several years. After spending some time as a sound producer dabbling in composition, he began earnestly studying music from the medieval and Renaissance periods. Crystallized in its purity, this early music entranced him.

Before discovering the medieval and Renaissance music at the root of Western

music, Part had chosen to compose thoroughly modern pieces based on Western experimental musical techniques, like twelve-tone technique and serialism. The Soviet Union in which Part lived did not take kindly to this modern Western music, and officials routinely banned Part's compositions from public performance. However, the genius of the work allowed him to win a variety of awards and accolades even in the Soviet Union. By 1968, Soviet oppression had encouraged him to abandon the modernist techniques, and a love of purity began to lead him to the early Western music.

At the heart of medieval music is unity. Many voices join to become one without distinction or ambition. While the modern Western techniques discovered new realms of music, they did so without pursuing unity. Arvo Part recovered the medieval sense of unified sound and brought it into the modern day. After a decade of silence spent contemplating this early Western music, the composer reemerged as a mature voice with *Tabula Rasa*, *Spiegel im Spiegel*, and *In Memoriam Benjamin Britten*. As part of his effort to return to the purity of the medieval and Renaissance sound, Part invented a new compositional technique called tintinnabuli. Although these classical compositions were steeped in the spirit of early music, they made use of the breadth of Part's expertise by incorporating elements of the orchestra which did not exist in medieval and Renaissance eras and by dwelling on the discordant elements of human emotion

and experience. The combination of disparate influences resulted in a pure sound with a modern story. Part combines these influences to explore themes of forgiveness, sorrow, contemplation, and searching.

Soviet censors, however, continued the same opposition toward the new creations of the composer as they employed against his older work. Part's life as an artist proved very difficult. In 1980, he and his wife and sons finally managed to move to Austria, then to Germany. A few years later, he met a producer for a European recording label who helped spread Part's work. Few classical composers in the modern day attain public fame, particularly composers with experimental techniques. However, Part's compositions gained such notoriety that his concert seats fill with young families, hipsters, college students, and elderly music lovers. Despite Part's distance from modern musical fashions, members of every age and education level who hear his work understand that they have found something without borders: art which expresses the questions of humanity.

11. As it is used in line 22, "extreme" is closest in meaning to
- A) intense.
 - B) ultimate.
 - C) profound.
 - D) outermost.

12. The main purpose of the first paragraph (lines 1-16) is to

- A) explain the purpose of Part's music.
- B) describe the experience of listening to Part.
- C) illustrate the importance of music in our modern time.
- D) demonstrate the importance of silence in music.

13. According to the passage, the development of Part's musical voice has been attributed to all of the following except

- A) Renaissance music.
- B) musical instruments in his childhood.
- C) the tintinnabuli technique.
- D) twelve-tone technique.

14. Lines 33-48 ("Before discovering...music.") mainly serve to suggest that

- A) Part adjusted his musical style to gain acceptance in the Soviet Union.
- B) Part's music was shaped primarily by his historical context.
- C) Part chose each direction for his music based on personal interest.
- D) Part came to believe that Soviets were right about the impurity of modern music.

15. The passage suggests that Part introduced which modernist aspects into his music?

- A) Elements of orchestra
- B) Unity
- C) Themes of forgiveness
- D) Silence

16. As it is used in line 54, "recovered" most nearly means
- A) established.
 - B) revived.
 - C) discovered.
 - D) replaced.
17. The fourth paragraph (lines 49-75) is primarily concerned with establishing a contrast between
- A) vocal music and orchestral music.
 - B) modernist influences and themes of forgiveness.
 - C) medieval music and Renaissance music.
 - D) oneness and disunity.
18. Which choice provides the best evidence for the answer to the previous question?
- A) Lines 50-51 ("Many voices...ambition.")
 - B) Lines 51-53 ("While the...unity.")
 - C) Lines 64-71 ("Although these...experience.")
 - D) Lines 73-75 ("Part combines...searching.")
19. The passage implies that Part's music
- A) never gained a following in his home, but grew very popular in the West.
 - B) so closely matched the spirit of his time that it gained a wide following.
 - C) expressed qualities too universal to go out of fashion.
 - D) gained fame only after he incorporated early music techniques.
20. Which choice provides the best evidence for the answer to the previous question?
- A) Lines 38-42 ("The Soviet...performance.")
 - B) Lines 56-60 ("After a...Britten.")
 - C) Lines 84-86 ("Few classical...techniques.")
 - D) Lines 90-95 ("Despite Part's...humanity.")
21. According to the passage, Soviet officials responded to Part's incorporation of early music into his composition with
- A) begrudging acceptance.
 - B) increased agitation.
 - C) routine burnings.
 - D) continued opposition.

Questions 22-31 are based on the following passage.

This passage is adapted from John Ruskin, *The Seven Lamps of Architecture*, originally published 1849. Here, Ruskin describes the first principle of architecture.

Architecture is the art which so adorns the structures raised by man for whatever uses that the sight of them contributes to his mental health, power and pleasure. It is
5 very necessary, in the outset of all inquiry, to distinguish carefully between Architecture and Building.

To build is by common understanding to put together and adjust the several pieces
10 of any structure of a considerable size. The persons who profess that art are builders, but building does not become architecture merely by the stability of what it erects.

Let us, therefore, at once confine the
15 name of Architecture to that art which impresses on its form certain characters venerable or beautiful, but otherwise unnecessary. Thus, I suppose, no one would call the laws architectural which determine
20 the height of a doorframe or the kind of wood in a beam. But if to the stone facing of that doorframe be added an unnecessary feature, as a cable molding, *that* is Architecture. If projecting masses be carved beneath into
25 rounded shapes, which are useless, and if the headings of the intervals be arched and engraved, which is useless, *that* is Architecture. This useless nature embodies the first principle of Architecture: sacrifice.

30 It may not be always easy to draw the line so sharply and simply, because there are few buildings which have not some pretense or color of being architectural; neither can there be any architecture which is not based on
35 building, nor any good architecture which is not based on good building. However, it is perfectly easy and very necessary to keep the ideas distinct, and to understand fully that Architecture concerns itself only with
40 those characters of a structure which are above and beyond its usefulness.

Architecture's spirit of sacrifice prompts us to the offering of precious things merely because they are precious, not because
45 they are useful or necessary. It is a spirit, for instance, which of two equally beautiful sorts of marble, both applicable and durable, would choose the more costly because it was so. Of two kinds of decoration, equally effective,
50 this spirit of sacrifice would choose the more elaborate because it was so. It is therefore most unreasoning and enthusiastic, and perhaps best defined as the opposite of the prevalent feeling of modern times, which
55 desires to produce the largest results at the least cost.

Of this spirit of sacrifice, there are two distinct forms: the first, the wish to exercise self-denial for the sake of self-discipline merely, a wish acted upon in the
60 abandonment of things loved or desired, there being no direct call or purpose to be answered by so doing; and the second, the desire to honor or please someone else by
65 the costliness of the sacrifice.

Nearly all old work has been hard work, work of sacrifice. It may be the hard work of children, of barbarians, of rustics; but it is always their utmost. Our work looks as though we have stopped short wherever and whenever we can. It has the appearance of lazy compliance with low conditions; never of a fair putting forth of our strength. Let us have done with this kind of work at once. Cast off every temptation to it!

Do not let us degrade ourselves voluntarily, and then mutter and mourn over our short comings. It is not even a question of how *much* we are to do, but of how it is to be done; it is not a question of doing more, but of doing better. If we have only so much to be spent in decoration, let us go to the craftsman, whoever he may be, and bid him carve for us a single statue or capital, or as many as we can afford, compelling upon him the one condition, that they shall be the best he can do. Place them where they will be of the most value, and be content. Our other capitals may be mere blocks, and our other niches empty. No matter. Better our work unfinished than all bad. It is more honest and unpretending.

22. What does Ruskin identify as the difference between building and architecture?

- A) Building deals with necessary structures, but architecture deals with the unnecessary parts.
- B) Building deals with new ways of making structures, but architecture deals with traditional ways.
- C) Building requires sacrifice from the maker, but architecture does not.
- D) Building is a good and worthwhile activity, but architecture has no value.

23. The main purpose of the passage is to

- A) instruct builders regarding the importance of stability.
- B) provide a tightly logical argument proving the importance of sacrifice.
- C) teach readers that sacrifice is necessary for architecture.
- D) argue against the needless extravagance of modern architects.

24. As it is used in line 39, "concerns" most nearly means

- A) worries.
- B) interests.
- C) distinguishes.
- D) decides.

25. According to Ruskin, the spirit of sacrifice motivates architects to value what is
- A) necessary.
 - B) durable.
 - C) useful.
 - D) valuable.
26. Based on Ruskin's description of architecture in the seventh paragraph (lines 66-75), it can be inferred that
- A) the architects of his time did not value sacrifice.
 - B) he believes that architects of past ages did careless work.
 - C) modern architects achieve great results in less time than past architects.
 - D) Ruskin believes modern architects are less likely to complete architectural projects than their ancestors.
27. Which choice provides the best evidence for the answer to the previous question?
- A) Lines 66-67 ("Nearly all...sacrifice.")
 - B) Lines 67-69 ("It may...their utmost.")
 - C) Lines 69-71 ("Our work...we can.")
 - D) Lines 73-74 ("Let us...at once.")
28. As it is used in line 70, "stopped short" most nearly means
- A) been taken by surprise.
 - B) were prevented from completion.
 - C) left unfinished.
 - D) purposefully limited efforts.
29. An architect following Ruskin's direction would NOT use
- A) expensive wood.
 - B) expert laborers.
 - C) the less expensive version of the same material.
 - D) the most elaborate decorations.
30. Which choice provides the best evidence for the answer to the previous question?
- A) Lines 14-18 ("Let us...unnecessary.")
 - B) Lines 23-28 ("If projecting...Architecture.")
 - C) Lines 36-41 ("However, it...usefulness.")
 - D) Lines 45-51 ("It is...was so.")
31. The third paragraph (lines 14-29) is primarily concerned with establishing a contrast between
- A) indispensable and ornamental structures.
 - B) wood and stone materials.
 - C) beauty and venerability.
 - D) architecture and sacrifice.

Questions 32-41 are based on the following passages.

Passage 1

Despite the countless advances in medicine over the last hundred years, today's primary treatment for broken bones remains largely identical to the treatment used throughout human history. The reason for this is simple: bones are excellent at healing themselves. Through a process that may last weeks or months, the bone and surrounding cells return the broken bone to its natural state.

Immediately after a bone breaks, the surrounding blood vessels begin to constrict, reducing additional blood loss, and a blood clot forms around the fracture site. Loose blood cells, bone fragments, and germs are restricted within the blood clot. Cells that collect and destroy threatening material begin to clean the area. At this point, a doctor will set the bone to ensure that the rest of the process goes well.

It takes a few days for the periosteum, the membrane that naturally surrounds the bone, to respond to the break. The periosteal cells closest to the fracture begin to transform and merge into soft cartilage at the fracture site. More distant periosteal cells become woven bone, which work their way toward the fracture and merge with the soft cartilage. Nearby fibrous cells also transform into cartilage. Before too long, this soft cartilage forms a connection across the fracture gap, uniting the bone with a somewhat soft band

known as a fracture callus.

The fracture callus takes on some of the qualities of the nearby bone. Most importantly, it develops a mineral matrix which allows bone-building cells known as osteoblasts to travel through it. The many channels that run through the fracture callus soon fill with osteoblasts, which meticulously line each channel wall with bone. This phase lasts four to six weeks. Once complete, the bone reaches the stage in which we usually consider it healed.

While the person who finally feels well may be grateful to think that everything is complete once the cast comes off, the body is not yet satisfied with its own work. Beneath the skin, a bulge of bone remains at the fracture site. The body spends one to three years dutifully breaking this bulky tissue down and replacing it with compact bone so that it returns to approximately the same shape it had initially.

Although modern scientists know a great deal more about the way that bones repair themselves than scientists of a hundred years ago did, today's medics still mostly treat fractures in the old fashioned way: setting bones, making casts, and monitoring the process. There is simply very little to be done to improve the natural efficiency of the bone's healing process.

Passage 2

Between five and ten percent of bone fractures result in a phenomenon called "non-union," in which the bones fail to mend

by natural process. If the bone has not begun mending 45 days after the fracture event, it is considered a non-union case. Therapies to overcome this problem by encouraging union have proven effective in many cases.

Experiments conducted using electric energy to overcome non-union began in 1821. At that time, a British doctor named Hartshorne attempted to treat a broken bone by passing electric currents through the fracture site. One other doctor experimented with Hartshorne's findings in the same century, but the work remained largely ignored until 1953, when a new study on rabbit bone growth stimulation using electricity was published.

Following the 1953 study, a variety of clinical trials proved that electric currents helped stimulate bone growth in non-union cases. In 1971, the electronic therapy helped overcome non-union in a 51-year-old lady. Since then, the procedure has proven effective in a small majority of cases. In 1994, the Food and Drug Administration of the United States of America approved the medical use of electric bone growth stimulation to treat fractures.

The key to this treatment's effectiveness is not the application of electricity to the bone itself, but the way the electricity influences the cells surrounding the fracture. Electric currents encourage collagen production, mineralization processes, and the speed with which the body transports needed nutrients to the fracture site.

In addition to its effectiveness in non-union cases, electricity has proven somewhat effective at speeding the natural process of bone healing when treatment begins at the time of the fracture. However, the increase in speed is not considerable enough to merit application to all broken bones, especially when weighed against the additional time, effort, and expense required to receive treatment.

32. According to Passage 1, the membrane surrounding the bone
- A) cleans up the fracture site.
 - B) sets the broken bone.
 - C) creates the soft cartilage.
 - D) coats the channels with bone.
33. Passage 1 states that returning the bulging bone to its original shape takes
- A) weeks or months.
 - B) several days.
 - C) four to six weeks.
 - D) one to three years.
34. As it is used in line 16, "restricted" most nearly means
- A) prohibited.
 - B) prevented.
 - C) confined.
 - D) reduced.
35. Which choice best describes the view Passage 2's author holds of electric therapy applied in normal union fractures?
- A) The treatment has no effect.
 - B) The benefits are worth the increased effort.
 - C) The treatment is too dangerous for use in normal cases.
 - D) There are not enough benefits to outweigh the costs.
36. Which choice provides the best evidence from Passage 2 for the answer to the previous question?
- A) Lines 70-73 ("Therapies to...cases.")
 - B) Lines 90-94 (In 1994...fractures.")
 - C) Lines 103-107 ("In addition...fracture.")
 - D) Lines 107-112 ("However, the...treatment.")
37. The central idea of Passage 2 is
- A) when fractures fail to heal, electric treatments can promote healing.
 - B) fractures occasionally fail to heal on their own.
 - C) several therapies for healing non-union cases have proven effective.
 - D) electric therapy for non-union benefits from animal testing.

38. According to line 69, “event” is closest in meaning to
- A) occurrence.
 - B) function.
 - C) gathering.
 - D) phenomenon.
39. Which choice best states the relationship between the two passages?
- A) Passage 1 presents a hypothesis, which Passage 2 proves incorrect.
 - B) Passage 1 explains a problem and Passage 2 offers the solution.
 - C) Passage 1 focuses on normal cases, while Passage 2 focuses on abnormal cases.
 - D) Both passages describe alternate theories of how bones heal.
40. How would the author of Passage 1 most likely respond to the points made in the final paragraph of Passage 2?
- A) Passage 1's author would agree that the natural healing process should be sped up.
 - B) Passage 1's author would agree that it is worth depending on the natural healing process in most cases.
 - C) Passage 1's author would agree that electric therapy should be used in non-union cases.
 - D) Passage 1's author would disagree that natural processes are not effective.
41. Which choice provides the best evidence for the answer to the previous question?
- A) Passage 1, lines 1-5 (“Despite the...history.”)
 - B) Passage 1, lines 61-63 (“There is...process.”)
 - C) Passage 2, lines 65-68 (“Between five...process.”)
 - D) Passage 2, lines 103-107 (“In addition...fracture.”)

Questions 42-52 are based on the following passage and supplementary material.

The farther we reach toward the stars, the more questions we discover about our home. While scientists have proposed many theories about the origin of the Moon, deeper investigation into other planetary bodies has complicated each hypothesis. At this time, three major theories still exist to explain how Earth obtained its satellite. Each theory attempts to explain several factors, the primary ones being the Moon's chemical composition, density, rotation, and orbit. Recent investigation into samples from the Moon and other extraterrestrial bodies have complicated each theory.

The leading Moon origin theory since the 1970s has been the giant impact hypothesis. According to this theory, the Earth received a glancing blow from another planetary body (referred to as Theia) billions of years ago, and parts of the debris from Theia and Earth merged to form the Moon. Astronomers have simulated the impact using computer models that take into account the gravitational force of the Earth. If the Earth spun at approximately twelve times its current rate at the time of impact, this theory would account for the rotation and orbit of the Moon. The giant impact hypothesis has been refined by many scientists over the last few decades, until it fully accounted for the Moon's chemical composition and density. However, recent examination of rocks from various locations in the solar system has revealed that every extraterrestrial body has a distinct

isotopic signature, a ratio between stable and unstable isotopes within each element. By contrast, close study shows that the Earth and its Moon have roughly identical isotopic signatures. This makes it virtually impossible for the Moon to be made largely of material from another planet.

Although support for the giant impact hypothesis was weakened by this isotopic evidence, scientists now seek to refine the hypothesis to take the new information into account. One theory suggests that two large planets collided directly, scattering debris to form both Earth and the Moon. However, one of the virtues of the giant impact hypothesis is its well-developed explanation for the Moon's rotation and orbit; this new theory dismisses that research. Another theory suggests that, since Theia formed in approximately the same orbit around the sun as the Earth, they may both have formed from a single group of loose, floating materials.

As much challenge as the findings regarding isotopes pose for the giant impact hypothesis, they provide even more problems for another leading theory of the Moon's origin. This hypothesis, known as the capture theory, suggests that the Moon formed separately from the Earth and was later captured by Earth's gravitational field. Like the giant impact hypothesis, the capture theory was able to explain the Moon's orbit and rotation. Also like the giant impact hypothesis, the capture theory requires an adjustment in our understanding of the

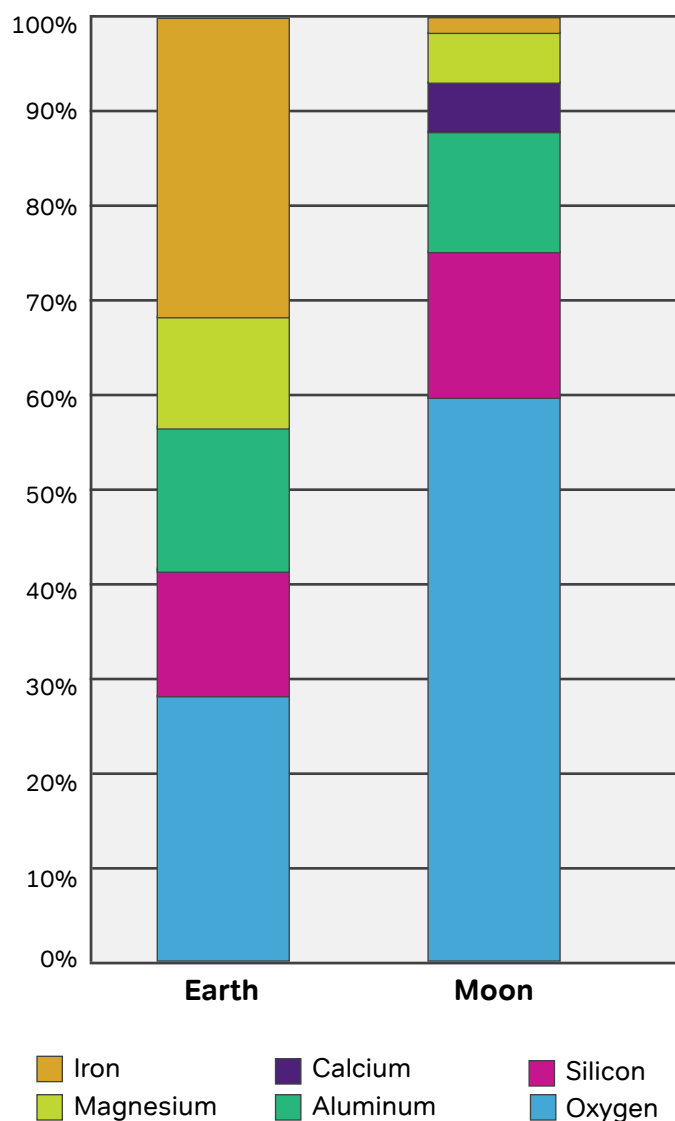
early Earth. In order for the Earth to have captured the Moon, its atmosphere must have extended much further from the surface than it does today. Such an atmosphere could
 75 slow the Moon sufficiently for it to enter orbit rather than breaking away from the Earth. The discovery that the Moon and Earth have identical isotopic signatures makes this theory highly unlikely.

80 The remaining major theory, the fission theory, has no challenge explaining the isotopic similarity of the Earth and Moon. According to this theory, the Moon was created when the rapidly spinning Earth
 85 extended portions of its outer layer far enough from the planet's surface for them to become a satellite. Early versions of this theory suggested that the material came from the Pacific Ocean basin, which would explain the
 90 massive indent in the Earth's surface at that site. Analysis of moon rocks supported this theory by revealing that the Moon contains many of the same chemicals as the Earth. While the fission theory could explain why the
 95 Earth and the Moon have identical isotopic signatures, other aspects of the theory require refinement. For instance, if the fission theory were true, the Moon's orbit would be expected to follow the Earth's equator. Additionally, it is
 100 highly improbable that the Earth would have reached the rotational speed required to throw that much material from its surface while maintaining the rest of its structure.

In light of the difficulties new discoveries
 105 have presented to old hypotheses, it is

important to remember that contrary evidence benefits any scientific theory. The more scientists learn about errors in current models, the more accurate their models become
 110 through revision. As astronomers learn more about the isotopic signatures of various planets in our solar system and beyond, the theories of the Moon's origin are not damaged, but improved.

Chemical Composition of the Earth and Moon



42. According to the author, the giant impact hypothesis has failed to explain the Moon's
- A) rotation.
 - B) isotopic signature.
 - C) orbit.
 - D) density.
43. Which of the following does the author suggest in the fourth paragraph (lines 58-79)?
- A) The Moon formed in a different part of the solar system than did Earth.
 - B) Recent findings have caused scientists to stop pursuing the idea that Earth captured the Moon.
 - C) In its current state, the Earth would not be able to capture the Moon.
 - D) The capture theory requires accepting improbable hypotheses about Earth's atmosphere.
44. Which choice provides the best evidence for the answer to the previous question?
- A) Lines 58-62 ("As much...origin.")
 - B) Lines 62-65 ("This hypothesis...field.")
 - C) Lines 71-74 ("In order...today.")
 - D) Lines 77-79 ("The discovery...unlikely.")
45. In lines 37-39, the statement that "close study shows that the Earth and its Moon have roughly identical isotopic signatures" primarily serves to
- A) distinguish between two different theories of the Moon's origin.
 - B) counter an argument about a perceived weakness in the giant impact hypothesis.
 - C) reveal a mistake that compromised the early giant impact hypothesis research.
 - D) present a piece of data which complicates the theory under discussion.
46. As it is used in line 18, "glancing" most nearly means
- A) grazing.
 - B) reflecting.
 - C) momentary.
 - D) glimpsing.
47. The author of the passage would most likely consider the information in the graph "Chemical Composition of the Earth and Moon" to be
- A) an inaccurate guide to the Earth and Moon.
 - B) support for the fission theory.
 - C) problematic for the capture theory.
 - D) made invalid by recent research into isotope signatures.
48. Which choice provides the best evidence for the answer to the previous question?
- A) Lines 27-31 ("The giant...density.")
 - B) Lines 37-39 ("By contrast...signatures.")
 - C) Lines 62-65 ("This hypothesis...field.")
 - D) Lines 91-93 ("Analysis...Earth.")

49. Which statement is best supported by the data presented in the graph?
- A) The isotopic similarity between Earth and the Moon comes from their similar chemical composition.
 - B) The Moon's chemical composition suggests that it formed from different elements than did the Earth.
 - C) The dissimilarity in Earth and the Moon's iron levels make the fission theory very unlikely.
 - D) The Earth and the Moon may have formed from the same substances.
50. As it is used in line 104, "in light of" is closest in meaning to
- A) despite.
 - B) expecting.
 - C) pending.
 - D) considering.
51. The passage most strongly suggests that proof that Theia formed from the same group of materials as Earth would have what effect?
- A) It would account for the disappearance of Theia following the impact.
 - B) It would prove the giant impact hypothesis to be true.
 - C) It would explain the isotopic similarity between the Earth and the Moon.
 - D) It would prove that the Earth and Moon both formed from debris of two colliding planets.
52. The author identifies all of the following as beneficial to Moon origin theories EXCEPT:
- A) planetary collision.
 - B) contrary evidence.
 - C) isotopic signatures.
 - D) model revision.

STOP

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

Writing and Language Test

35 minutes, 44 questions

Turn to Section 2 of your answer sheet to answer the questions in this section.

DIRECTIONS

Each passage below is accompanied by a number of questions. For some questions, you will consider how the passage might be revised to improve the expression of ideas. For other questions, you will consider how the passage might be edited to correct errors in sentence structure, usage, or punctuation. A passage or a question may be accompanied by one or more graphics (such as a table or graph) that you will consider as you make revising and editing decisions.

Some questions will direct you to an underlined portion of a passage. Other questions will direct you to a location in a passage or ask you to think about the passage as a whole.

After reading each passage, choose the answer to each question that most effectively improves the quality of writing in the passage or that makes the passage conform to the conventions of standard written English. Many questions include a “NO CHANGE” option. Choose that option if you think the best choice is to leave the relevant portion of the passage as it is.

Questions 1-11 are based on the following passage.

Lately, a small but **1** annoying group of scholars, writers, and students have been questioning William Shakespeare’s place in the literary pantheon. For several hundred years, Shakespeare has been the undisputed master of English literature. Finally, his super-human status has turned against him. Now, people are beginning to ask whether an uneducated man raised by illiterate parents could truly have written these great plays.

1. The writer wants to convey an attitude of respectful disagreement. Which choice best accomplishes this goal?
A) NO CHANGE
B) pestiferous
C) outspoken
D) irritating

2 These skeptics, known as “Oxfordians,” believe that William Shakespeare of Stratford-Upon-Avon, the figure to whom history has ascribed the plays, was not actually a writer, but the stand-in for an anonymous playwright. A wide variety of possible “true authors” have been proposed.

Much of the argument revolves around the lack of records surrounding William Shakespeare of Stratford. There are no records from the Stratford Grammar School, so his earliest education is undocumented. Additionally, no personal letters from Shakespeare remain. The only examples of his writing are six signatures that appear sloppy. His parents signed their names with an “X.” So did his daughters. 3 Despite all of this evidence suggesting that Shakespeare may have been illiterate.

2.

- A) NO CHANGE
- B) These skeptics, known as, “Oxfordians,” believe that
- C) These skeptics known as “Oxfordians,” believe that
- D) These skeptics, known as “Oxfordians” believe that

3.

- A) NO CHANGE
- B) In contrast, all of this evidence suggesting
- C) Therefore, all of this evidence suggesting
- D) Taken together, all of this evidence suggests

Yet, the traditional Shakespeare scholars (called “Stratfordians”) have little patience with these theories. In terms of Shakespeare’s literacy, scholars point to reports written by the man’s friends. The famous author Ben Johnson, for one, knew Shakespeare personally. He wrote often about Shakespeare’s work, although his reviews rarely flattered his friend. Thomas Haywood noted that his friend of the “enchanted quill”

4 was liking to go by the nickname “Will.”

5 These are only two of many examples.

Thus, on the one hand, the Oxfordian’s denial of Shakespeare’s literacy makes arguments from lack of 6 information, on the other, the Stratfordian’s argument rests on the reports of people who knew Shakespeare personally.

4.

- A) NO CHANGE
- B) liking to go by
- C) liked to go by
- D) liking

5.

The writer is considering deleting the underlined sentence (#5). Should the sentence be kept or deleted?

- A) Kept, because it gives the reader information about further evidence.
- B) Kept, because it provides a unique counterargument against the Oxfordian claims.
- C) Deleted, because it only repeats information given in the previous sentences.
- D) Deleted, because its information is too vague to be informative.

6.

- A) NO CHANGE
- B) information on the other,
- C) information; on the other,
- D) information: on the other

Additionally, Shakespeare's plays reveal a dizzying number of details regarding contemporary manners among royalty and foreign cultures. The historical Shakespeare grew up in a small town, and never traveled abroad. The Oxfordians ask, "How could such a sheltered man have written so well about these matters of high culture and other lands?" The true author, they suggest, must have **7** been one of the most wealthy people in England.

As for the questions about Shakespeare's lack of cultural exposure, historical examination debunks the skeptics' claims. In Shakespeare's time, the standard grammar school curriculum included quite a bit of the information contained in the plays. **8** Nevertheless, records reveal a book containing most of the allusions that show up in Shakespeare's plays **9** was donated by a private benefactor to Stratford's grammar school a few years after William's birth.

- 7.** Which choice provides the most relevant hypothesis?
- A) NO CHANGE
 - B) understood how to win the audiences in many lands.
 - C) been familiar with the kings and queens and foreign lands.
 - D) written thousands of personal letters.
- 8.**
- A) NO CHANGE
 - B) Thus,
 - C) However,
 - D) Moreover,
- 9.** At this point, the writer is considering adding the following.
- as well as several of the mistakes that Shakespeare makes—
- Should the writer make this addition here?
- A) Yes, because it proves that Shakespeare made mistakes in his works.
 - B) Yes, because it reveals how much of Shakespeare's knowledge came from one book.
 - C) No, because it interrupts the flow of the sentence.
 - D) No, because it suggests that Shakespeare was not as great a playwright as previously claimed.

Despite his genius, Shakespeare made quite a few mistakes in his descriptions. As he wrote boldly about places he had never visited, **10** except he made major geographical and political blunders in these descriptions. So, Shakespeare's lack of travel is consistent with the content of his plays. **11**

10.

- A) NO CHANGE
- B) inevitably, he
- C) he meanwhile
- D) he cautiously

11. To make the passage most logical, paragraph 3 should be placed

- A) where it is now.
- B) after paragraph 1.
- C) after paragraph 4.
- D) after paragraph 5.

Questions 12-22 are based on the following passage.

Many take our national parks for **12** granted. We assume the parks have always been there. But our nation was almost one hundred years old before we had our first **13** national park. This was Yellowstone National Park, which was also the first national park in the entire world. Today, the park covers, Montana, Idaho, and Wyoming but the majority of the park is in Wyoming.

14 Wyoming was not a state at the time. The federal government had less difficulty turning Yellowstone into a national park than it would have had otherwise had the park already been a part of a state.

12.

- A) NO CHANGE
- B) granted assuming
- C) granted, assuming
- D) granted, to assume

13.

- A) NO CHANGE
- B) national park:
- C) national park, which is
- D) national park; this was

14. Which choice most effectively combines the underlined sentences?

- A) Wyoming was not a state at the time, the federal government having less difficulty turning Yellowstone into a national park than it would have had otherwise had when the park already been a part of a state.
- B) Because Wyoming was not a state at the time, the federal government had less difficulty turning Yellowstone into a national park than it would have had otherwise had the park already been part of a state.
- C) Had the park already been part of a state, the federal government would have had less difficulty turning Yellowstone into a national park because Wyoming was not a state at the time.
- D) The federal government had less difficulty turning Yellowstone into a national park than it would have had otherwise had the park already been part of a state; Wyoming was not a state at the time.

15 Nonetheless, had it not been for the efforts of Ferdinand V. Hayden, an American geologist noted for his pioneering surveying expeditions of the Rocky 16 Mountains Yellowstone may not have become the majestic expanse of wilderness we know today. The reality was Hayden was worried that Yellowstone could easily become like Niagara Falls, which was overridden with 17 tourism; he felt that only the national government could help preserve the land so that it was 18 consecutive with his vision.

15.

- A) NO CHANGE
- B) Therefore,
- C) Moreover,
- D) Additionally,

16.

- A) NO CHANGE
- B) Mountains, Yellowstone
- C) Mountains, Yellowstone,
- D) Mountains; Yellowstone

17.

- A) NO CHANGE
- B) tourism, he felt
- C) tourism, feeling
- D) tourism and which he felt

18.

- A) NO CHANGE
- B) lined up
- C) consistent
- D) coexisting

In 1871, after successfully appealing to the Senate and the House of Representatives, Hayden was able to turn Yellowstone into a National Park. The park first met with local **19** opposition, the result being that many who lived in the area wanted to profit from the resources found in the park. They feared that the park would stifle any economic activity in the area, since all of the park's abundant resources would be closed to any form of exploitation. Local entrepreneurs **20** seeking to have the size of the park limited so they could conduct mining and logging activities. **21** Some Montana representatives even tried to have bills introduced into Congress that, if passed, would either limit the boundaries of or totally abolish the land that was to become Yellowstone National Park.

19.

- A) NO CHANGE
- B) opposition. The result was that
- C) opposition, since
- D) opposition, and

20.

- A) NO CHANGE
- B) seek
- C) seeked
- D) sought

21. The writer is considering deleting the underlined sentence. Should the writer do this?

- A) Yes, because it repeats information that is already contained in the sentence immediately preceding it.
- B) Yes, because it contradicts information mentioned earlier in the paragraph.
- C) No, because it provides another point that supports the main idea of the paragraph.
- D) No, because it discusses an important consequence that the author will go on to elaborate in the final paragraph.

Fortunately for those who hoped to preserve
22 nature's wonders none of this opposition
was fruitful. Within a year, there was continued
opposition, though this had died down considerably
since the park's inception.

22.

- A) NO CHANGE
- B) natures wonders
- C) natures wonders,
- D) nature's wonders,

Questions 23-33 are based on the following passage.

The Brooklyn Museum features an item that might, for the first time ever, be the sole star of the show. Since its inception nearly 100 year ago, this accessory has been part of the limelight but has always been attached to the human body—whether in flight, in pivot, or in mid-stride. I’m talking about the lowly sneaker, which finally has the limelight all to itself in **23** the exhibit “The Rise of Sneaker Culture”.

I should be honest: upon walking into the exhibit I did not expect much. After all, how edifying can one Air Jordan sneaker encased in a wall possibly be? But the exhibit offers much more than an endless **24** procession of athletic shoes.

23.

- A) NO CHANGE
- B) the exhibit, “The Rise of Sneaker Culture”.
- C) the, exhibit, “The Rise of Sneaker Culture”.
- D) the exhibit; “The Rise of Sneaker Culture”.

24.

- A) NO CHANGE
- B) secession
- C) production
- D) regression

[1] The very first shoe I saw, an original Chuck Taylor All Star **25** from 1927 hardly allayed my fears that the exhibit would underwhelm me. [2] It was only when I read the placard beneath the sneaker that I learned about Chuck Taylor the man. [3] After all, the shoe, which is still produced today, with very little variation in look and design from the original, is so common that you don't have to walk very far before seeing someone sporting a pair. [4] **26** A professional basketball player, the design and the feel of his eponymous shoe had been influenced by him. [5] He was passionate about the game of basketball and held basketball clinics throughout the country, where he taught the fundamentals of the sport, stressed the importance of calisthenics, and promoted a shoe he believed would enhance both. [6] To create such a sneaker, he used the clinics as a laboratory of sorts, **27** testing out his latest design and making modifications where necessary. [7] What I beheld was the product of the man's passion and dedication. **28**

25.

- A) NO CHANGE
- B) , from 1927 hardly
- C) from 1927 hardly,
- D) from 1927, hardly

26.

- A) NO CHANGE
- B) to test
- C) he tested
- D) and was testing

27. Which of the following is the most appropriate version of the underlined sentence?

- A) NO CHANGE
- B) A professional basketball player, Chuck Taylor influenced the design and the feel of his eponymous shoe.
- C) Chuck Taylor, he influenced the design and feel of his eponymous shoe.
- D) Influencing the design and the feel of his eponymous shoe, Chuck Taylor was a professional basketball player.

28. To make this paragraph most logical, sentence 2 should be placed:

- A) where it is now.
- B) after sentence 3.
- C) after sentence 4.
- D) after sentence 6.

The main focus of the exhibition,

29 consequently, was the culture that emerged around the sneaker. Nowhere was this more exemplified than in the 1980s, when sneakers were not necessarily as much about enhancing athleticism as about **30** providing inspiration. And no shoe embodied this ethos more than the Air Jordan. With eleven years worth of different

29.

- A) NO CHANGE
- B) as a result
- C) however
- D) additionally

30. The writer wants to connect this phrase to the ideas expressed in the rest of the paragraph. Which choice best accomplishes this goal?

- A) NO CHANGE
- B) documenting change
- C) conferring status
- D) providing ankle stability

models in front of me, I could see an interesting progression—or regression, depending on your **31** sensibilities: of the shoe. The Air Jordan 1 is a minimalist masterpiece, conjuring up the early 1980s (think red and white, with a black signature swoosh). The Air Jordan 11, by contrast, **32** look like they'd be more fitting for somebody planning to walk on the moon. This development points to an emphasis young teens have **33** concerning sticking out from the rest of the “sneaker crowd”. This trend is reflected in the cost increase of each subsequent iteration of the shoe. All this I learned by simply walking through the exhibition.

31.

- A) NO CHANGE
- B) sensibilities,
- C) sensibilities—
- D) sensibilities

32.

- A) NO CHANGE
- B) looks like they would be
- C) looks like it would be
- D) looking like it would be

33.

- A) NO CHANGE
- B) upon
- C) about
- D) on

Questions 34-44 are based on the following passage.

Abebe Bikila didn't train as a runner until he turned 24. Born in 1932 in Mendida, Ethiopia, Bikila was raised by his father, a shepherd. When Bikila grew old enough to help support his family, he joined the Imperial Body Guard. The training was rigorous, and **34** had included twenty mile runs barefoot over rocky terrain. While performing one of these painful runs through the hills, **35** one of his teachers took note of his incredible natural racing ability. Before long, the teacher, Onni Niskanen, was coaching Bikila for marathons.

34.

- A) NO CHANGE
- B) included
- C) will include
- D) includes

35.

- A) NO CHANGE
- B) noticing his incredible natural racing ability was one of his teachers.
- C) Bikila's incredible natural racing ability was noticed by one of his teachers.
- D) Bikila impressed one of his teachers with his incredible natural racing ability.

Bikila won his first race in **36** Ethiopia's capital in 1960. Although this victory brought him some national fame, the world didn't yet take notice. Niskanen was certain that Bikila was one of the best runners in the world, so he **37** enrolled Bikila as Ethiopia's marathon runner in the Rome Olympics that year, just months after his first formal race. His sponsor was Adidas, a shoe company. However, **38** because of the fact that Adidas failed to provide shoes in his size, Bikila decided to run without them when the day of the race arrived.

36.

- A) NO CHANGE
- B) the Ethiopia capital
- C) Ethiopian capital
- D) Ethiopian's capital

37.

- A) NO CHANGE
- B) volunteered
- C) registered
- D) submitted

38.

- A) NO CHANGE
- B) because of the unfortunate fact that
- C) since
- D) due to the unfortunate fact that

At any Olympic event, the viewers and trainers have a good guess about which three or four people stand the best chance of winning. No one was paying much attention to the **39** unknown, largely untrained, barefoot, man standing among athletes who had been preparing **40** his or her whole life.

39.

- A) NO CHANGE
- B) unknown, largely, untrained, barefoot man
- C) unknown. Largely untrained barefoot man
- D) unknown, largely untrained, barefoot man

40.

- A) NO CHANGE
- B) their whole lives.
- C) their whole life.
- D) one's whole life.

The race began, and the runners lit off through the streets of Rome. After a few miles, four men had taken a solid lead over the rest of the runners. Among them was Bikila, running tirelessly beside the best runners in the world. **41** He reached the finish line 25 seconds before the next closest runner. **42** Bikila was the first African to win an Olympic medal for long-distance running. With this victory, Bikila also broke the world record for marathon completion time.

- 41.** At this point, the writer is considering adding the following sentence.

As he passed a great obelisk from Ethiopia, Bikila finally surged ahead of the others.

Should the writer make this addition here?

- A) Yes, because it adds important details to the narrative.
- B) Yes, because it gives the reader more information about Bikila's opponents.
- C) No, because it distracts the reader with irrelevant trivia.
- D) No, because it causes the reader to lose focus on the end of the race.
- 42.** Which choice most effectively combines the underlined sentences?
- A) Bikila was the first African to win an Olympic medal for long-distance running, and he also was able to break the world record for marathon completion time with this victory.
- B) Bikila, who was the first African to win an Olympic medal for long-distance running, with this victory he also broke the world record for marathon completion time.
- C) In addition to becoming the first African to win the Olympic medal for long-distance running with this victory, Bikila also broke the world record for marathon completion time.
- D) With this victory, Bikila both broke the world record for marathon completion time and became the first African to win an Olympic medal for long-distance running.

After his success in Rome, Bikila won a second race weeks later and many more in the coming years. Experts described Bikila's running as the perfect example of marathon **43** technique. Upright posture, effortless gait, and even strides. Bikila competed in more Olympic games over the next decade, until he experienced a car accident that left him unable to use his legs. Despite the loss **44** done to his ability to run, Bikila remained positive. He continued to compete in the Olympics until his death, though he changed his sport to archery.

43.

- A) NO CHANGE
- B) technique: upright, posture,
- C) technique: upright posture,
- D) technique; upright posture,

44.

- A) NO CHANGE
- B) with
- C) of
- D) after

STOP

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



Math Test – No Calculator

25 minutes, 20 questions

Turn to Section 3 of your answer sheet to answer the questions in this section.

DIRECTIONS

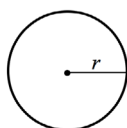
For questions 1-15, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet.

For questions 16-20, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 16 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

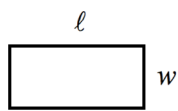
1. The use of a calculator is not permitted.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated, the domain of a given function f is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCES

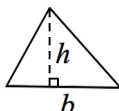


$$A = \pi r^2$$

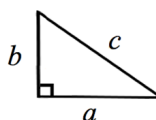
$$C = 2\pi r$$



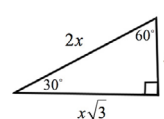
$$A = \ell w$$



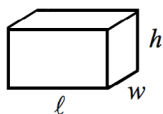
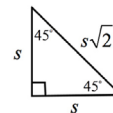
$$A = \frac{1}{2}bh$$



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



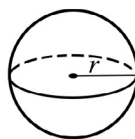
Special Right Triangles



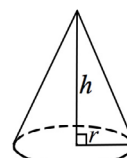
$$V = \ell wh$$



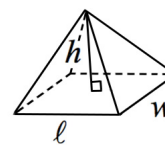
$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}\ell wh$$

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

The number of radians of arc in a circle is 2π .

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



1. In the Antares Corporation, $\frac{3}{7}$ of the managers are female. If there are 42 female managers, how many managers in total are there?
- A) 24
B) 60
C) 66
D) 98
2. Right triangle CDE has its right angle at vertex D . The length of DE is 8 feet and the length of CE is 17 feet. What is the length, in feet, of CD ?
- A) 11
B) 12
C) 14
D) 15
3. $\frac{3}{x+2} = \frac{6}{y}$ where y cannot equal zero and x cannot equal -2, what is y in terms of x ?
- A) $y = 2x + 12$
B) $y = 2x + 2$
C) $y = 2x + 4$
D) $y = \frac{18}{x} + 9$
4. On a certain high school athletic team, the ratio of freshmen to sophomores to juniors to seniors is 1:3:4:6. If there are 60 juniors on the team, how many students in total are on the team?
- A) 90
B) 140
C) 180
D) 210



5. Which of the following is equal to

$$(8 - 2i)(3 + 5i)?$$

- A) 24
- B) 34
- C) $14 + 34i$
- D) $34 + 34i$

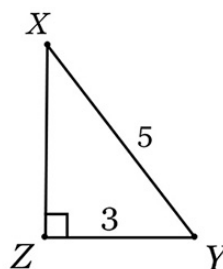
6. In 2004, Cindy had \$4,000 in a mutual fund account. In 2005, the amount in the same account was \$5,000. If the percent increase from 2004 to 2005 was the same as the percent increase from 2005 to 2006, how much did Cindy have in this account in 2006?

- A) \$5,800
- B) \$6,000
- C) \$6,250
- D) \$7,500

7. Tanya leaves her home at 1:30 p.m. and drives at an average of 40 mph and then stops at 3:00 p.m. If Max needs to travel half the distance to meet Tanya at 3 p.m., how fast must he drive if he leaves at 2 p.m.?

- A) 20 mph
- B) 30 mph
- C) 40 mph
- D) 50 mph

- 8.

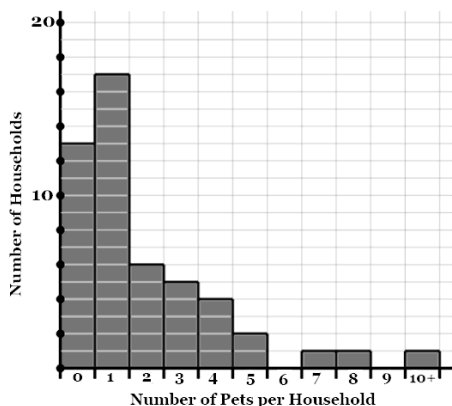


The hypotenuse of right triangle XYZ is 5, and leg $YZ = 3$, as shown. Which of the following equals the tangent of angle X ?

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



9.



A survey contacted all 50 households in the village of Bastetville, and determined the number of pets in each household. The results are displayed in the histogram above. What percent of the households in the village of Bastetville have fewer than two pets?

- A) 26
- B) 34
- C) 47
- D) 60

10. $9^k \times 27^{2k} =$

- A) 3^{5+3k}
- B) 3^{8k}
- C) 3^{11k}
- D) 3^{12k}

11. Whenever $\cos \theta = 0$, and $0 \leq \theta \leq \pi$, the value of $\sin \theta =$

- A) -1
- B) 0
- C) $\frac{1}{2}$
- D) 1

12. For a long time, the price of a certain console remained the same. Because of new tariffs, the price of this console increased by 50% last week, and stayed at this new level. This week, Amanda purchased the console with a 50% off coupon. Amanda paid \$240. What was the original price, before the last week's price increase?

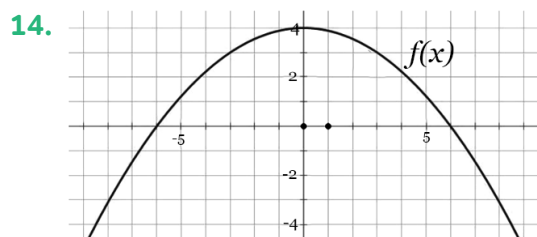
- A) \$180
- B) \$240
- C) \$320
- D) \$360



13. $a^2 - 26a + 69 = 0$

If $a - 5 > 0$, what is the value of a ?

- A) 3
- B) 5
- C) 18
- D) 23



If $g(x) = -\frac{1}{2}f(x)$, for all values of x , which of the following is a true statement describing the graph of g in comparison with the graph of f ?

- A) It is narrower and opens upward.
- B) It is the same width but opens upward.
- C) It is wider and opens downward.
- D) It is wider and opens upward.

15. The length of each side of an equilateral triangle is increased by 20%, resulting in triangle ABC . If the length of each side of the original equilateral is decreased by 20%, resulting in triangle DEF , how much greater is the area of triangle ABC than the area of triangle DEF ?

- A) 44%
- B) 80%
- C) 125%
- D) 144%



DIRECTIONS

For questions 16-20, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

- 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. You will receive credit only if the circles are filled in correctly.
- Mark no more than one circle in any column.
- No question has a negative answer.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or $7/2$.
(If $\boxed{3} \boxed{1} \boxed{/} \boxed{2}$ is entered into the grid, 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.

Answer: $\frac{3}{10}$

$\boxed{3}$	$\boxed{/}$	$\boxed{1}$	$\boxed{0}$	Write answer in boxes.
/	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fraction line
.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Decimal point
0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Grid in result.
1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Answer: 1.2

$\boxed{1}$	$\boxed{.}$	$\boxed{2}$
/	<input type="radio"/>	<input type="radio"/>
.	<input type="radio"/>	<input checked="" type="radio"/>
0	<input type="radio"/>	<input type="radio"/>
1	<input checked="" type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input checked="" type="radio"/>
3	<input type="radio"/>	<input type="radio"/>

Answer: 230 – either position is correct

$\boxed{2}$	$\boxed{3}$	$\boxed{0}$
/	<input type="radio"/>	<input type="radio"/>
.	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input checked="" type="radio"/>
1	<input type="radio"/>	<input type="radio"/>
2	<input checked="" type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input checked="" type="radio"/>

Acceptable ways to grid $\frac{1}{3}$ are:

$\boxed{1}$	$\boxed{/}$	$\boxed{3}$
/	<input type="radio"/>	<input checked="" type="radio"/>
.	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input type="radio"/>
1	<input checked="" type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input checked="" type="radio"/>

$\boxed{.}$	$\boxed{3}$	$\boxed{3}$	$\boxed{3}$
/	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

NOTE: You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.



16. One of the vertices of triangle DEF is the origin. The other two vertices lie on the points $(4, 0)$ and $(4, 3)$. What is the area of DEF ?
17. Isosceles triangle ABC , in which each side equals an integer, has sides of length of 5 and 6. What is the area of triangle ABC , if the altitude from the base of ABC is also an integer?
18. The equation $f(t) = t^3 + 5t$ represents the number of bacteria in a petri dish, where t equals number of hours. What is the number of bacteria at exactly three hours?
19. A music artist sold 300,000 compact discs in 2010, a 50% increase from 2009. How many compact discs did the music artist sell in 2009?
20. A cartographer owns a square map in which one inch corresponds to $\frac{7}{3}$ of a mile. What is the area of the map in square inches if the map covers a territory of 49 square miles?

STOP

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



Math Test – Calculator

55 minutes, 38 questions

Turn to Section 4 of your answer sheet to answer the questions in this section.

DIRECTIONS

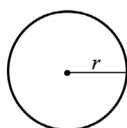
For questions 1-30, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet.

For questions 31-38, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 31 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

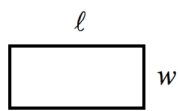
1. The use of a calculator **is permitted**.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated, the domain of a given function f is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCES

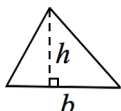


$$A = \pi r^2$$

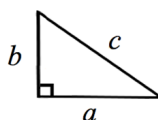
$$C = 2\pi r$$



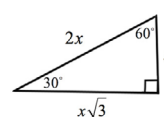
$$A = \ell w$$



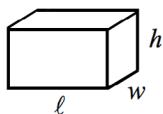
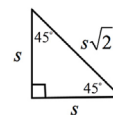
$$A = \frac{1}{2}bh$$



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



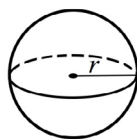
Special Right Triangles



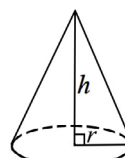
$$V = \ell wh$$



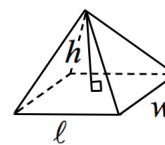
$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}\ell wh$$

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

The number of radians of arc in a circle is 2π .

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



1. The price of a pair of sneakers was \$80 for the last six months of last year. On January 1st, the price increased 20%. After the price increase, an employee bought these sneakers with a 10% employee discount. What price did the employee pay?
A) \$82.00
B) \$83.33
C) \$86.40
D) \$88.00
2. If $x^2 = 4$ and $y^2 = 9$, then which of the following could be the value of xy ?
A) -6
B) 2
C) 3
D) 12
3. In Dewey Elementary School, there are two second-grade classes: class A has 35 students and class B has 45 students. If 40% of the students in class A walk to school, and 80% of the students in class B walk to school, what percent of all the students in the second grade at Dewey Elementary walk to school?
A) 40%
B) 42.5%
C) 60%
D) 62.5%
4. If 24 kilograms of flour are required to make 300 tarts, how many kilograms of flour are required to make 45 tarts?
A) $\frac{10}{3}$
B) $\frac{32}{9}$
C) $\frac{18}{5}$
D) $\frac{15}{4}$



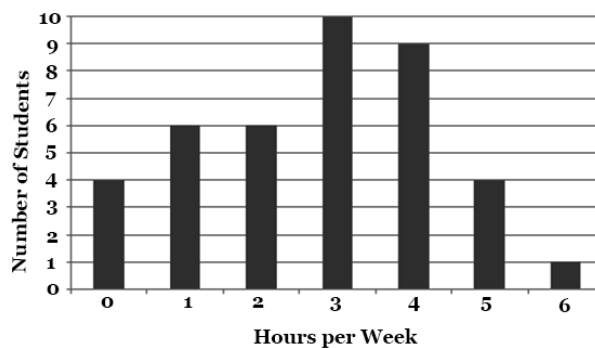
5. $2x - 3(x - 6) \leq 28 + 4x$
What is the solution for the inequality?

- A) $\frac{46}{5} \leq x$
B) $-\frac{10}{3} \leq x$
C) $\frac{36}{5} \leq x$
D) $-2 \leq x$

6. $\frac{1}{5}$ of x is equal to 2. $\frac{1}{3}$ of y is equal to 4.
What is $x - y$?

- A) -2
B) 2
C) 5
D) 10

Questions 7 and 8 refer to the following information.



A survey of a high school track team asked the 40 members how many hours per week (rounded to the nearest hour) they spend running outside of team practices. The 40 responses are summarized in the histogram above.

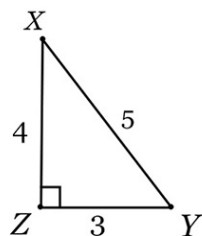
7. To the nearest hundredth of an hour, what is the average number of hours spent running for the 40 respondents?
- A) 2.75
B) 2.90
C) 3.25
D) 3.40



8. What fraction of athletes responded that they spent less than 2 hours per week running?

A) $\frac{1}{10}$
 B) $\frac{1}{8}$
 C) $\frac{1}{4}$
 D) $\frac{2}{5}$

9.



For right triangle XYZ shown above, which of the following expressions has a value that is equal to $\sin X$?

A) $\sin Y$
 B) $\cos X$
 C) $\cos Y$
 D) $\tan Y$

10.

	Team 1	Team 2	Team 3
	74	64	77
	80	76	91
	93	81	92
	94	85	90
	74	89	85
Average Score	83	79	87

Students in an 11th grade history class are randomly divided into three teams of five students for a history trivia contest. Each student takes a trivia test with 100 total points and their scores are posted above. The team with the highest average score (rounded to the nearest whole number) wins the contest.

Which of the following is closest to the average score for all students participating in the contest?

A) 79%
 B) 83%
 C) 85%
 D) 87%



11.

Year	Number of Aquatic Organisms
2008	4,207
2009	4,546
2010	4,902

What was the approximate increase in the number of aquatic organisms over each of the two years listed above?

- A) 4%
- B) 5%
- C) 7.5%
- D) 10%

12. In the xy -coordinate system, points $(2, 9)$ and $(-1, 0)$ lie on line k . If the point $(n, 21)$ lies on line k , what is the value of n ?

- A) 6
- B) 7
- C) 8
- D) 9

13. If a spaceship travels at an average speed of 6×10^{10} kilometers per year, how many years will it take the spaceship to travel 3×10^{30} kilometers?

- A) 5×10^2
- B) 5×10^{19}
- C) 5×10^{20}
- D) 5×10^{21}



14. John joins a gym for exactly one year. If John pays n dollars per month for the gym membership for the first month and $n - 10$ for each of the remaining eleven months, how much does John pay that year in terms of n ?
- A) $n(n - 10)$
B) $12n - 100$
C) $11(n - 10)$
D) $12n - 110$
15. According to a conservation biologist, the number of bison in a national park is declining at an annual rate of 1.74%. If the current population is 18,000, which of the following expressions appropriately models the population of bison five years from now?
- A) $18,000(1 - .0174^5)$
B) $18,000(1 - .0174)^5$
C) $18,000 - .0174^5$
D) $(18,000 - .0174)^5$
16. For every four magazines Wanda sells during the book drive, she gets 50 cents commission. If she makes a total of \$20.50, how many magazines does she sell?
- A) 40
B) 41
C) 161
D) 164
17. If $y = 2x^3 + 3x + 4$ and $t = 4x^2 - 3x + 2$, what is $2y - t$ in terms of x ?
- A) $8x^3 + 9x + 6$
B) $4x^3 - 4x^2 + 3x + 10$
C) $4x^3 - 4x^2 + 9x + 2$
D) $4x^3 - 4x^2 + 9x + 6$



18.

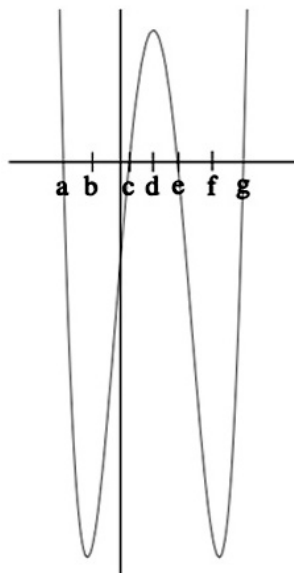
Room	Maximum Capacity	Flat Cost	Per Guest Price
Room A	10 guests	\$50	\$10/guest
Room B	25 guests	\$75	\$8/guest
Room C	50 guests	\$150	\$5/guest

Party Palace has three rooms it rents for events. The cost for each is a flat fee plus a certain amount per guest. Each room has a maximum number of guests that cannot be exceeded.

Brenda planned to have a party at Party Palace. Her parents had said they would pay for Room B and 24 guests, the original number of guests Brenda had in mind. Brenda decided to invite 3 more guests, and paid for the additional cost for Room C and the extra guests out of her own pocket. How much did Brenda pay?

- A) \$18
- B) \$24
- C) \$90
- D) \$93

19.



Consider the 4th-degree polynomial function graphed in the standard (x, y) coordinate plane above. The function has a local maximum at d , local minimums at bands b and f , and x -intercepts at a , c , e , and g . On what interval(s) of x is the function increasing?

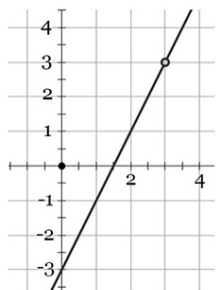
- A) From negative infinity to positive infinity
- B) From negative infinity to b and d to f
- C) From negative infinity to a , between c and e , and g to positive infinity
- D) From b to d and f to positive infinity



20. If $f(x) = x + 2$ and $g(x) = 4$, what does $f(g(3))$ equal?
- A) 3
 - B) 5
 - C) 6
 - D) 7
21. A retailer purchases shirts from a wholesaler and then sells the shirts in her store at a retail price that is 80 percent greater than the wholesale price. If the retailer decreases the retail price by 30 percent this will have the same effect as increasing the wholesale price by what percent?
- A) 26
 - B) 37.5
 - C) 42
 - D) 44
22. A necklace is made up of three different colored beads: red, blue, and green. If the ratio of blue to red beads is 1:3 and red to green beads is 2:3, what is the fewest number of beads that could be on the necklace if the total number of beads on the necklace is greater than fifty?
- A) 21
 - B) 34
 - C) 51
 - D) 54



23.



The graph shows a function graphed in the standard (x, y) plane. Which of the following could be the equation of the function?

- A) $2x - 3$
- B) $\frac{2x-3}{x-3}$
- C) $\frac{2x-3}{x+3}$
- D) $\frac{2x^2-9x+9}{x-3}$

24. $(x+1)(x^2+nx+1) = x^3 + 3x^2 + 3x + 1$

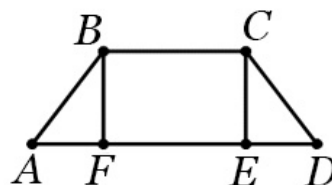
What is the value of n ?

- A) -1
- B) 1
- C) 2
- D) 3

25. South Park Road is closed during the last three months of the year and the first two months of the new year. If n stands for the number of the month (January corresponds to 1, February corresponds to 2, etc.), which of the following equations describes the months during which South Park Road is closed?

- A) $|n - 2| \geq 0$
- B) $|n - 2| \geq 6$
- C) $|n - 4| \geq 6$
- D) $|n - 6| \geq 4$

26.



In trapezoid $ABCD$, $BC = EF = 6$, $AF = DE = 3$, and $AB = CD = 5$. If the area of a trapezoid is given by $A = \left(\frac{b_1+b_2}{2}\right)h$, then which of the following is the area of trapezoid $ABCD$?

- A) 12
- B) 24
- C) 36
- D) 45



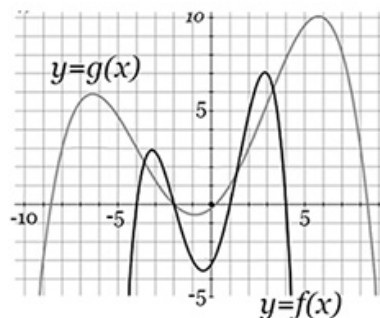
27. Carlos decreased his daily caloric intake by 20%, and Carol increased her daily caloric intake by 20%. If they both now consume the same number of calories, how much percent greater was Carlos's original caloric intake than that of Carol?

A) 37%
 B) 40%
 C) 48%
 D) 50%

28. Experimental data is represented in the standard (x, y) coordinate plane by a scatterplot consisting of 5 points: $(0, 3)$, $(1, 4)$, $(9, 6)$, $(16, 7)$, $(25, 8)$. When all possible real values for a , b , and c are considered, which of the following functions best fits the experimental data?

A) $y = 2a$
 B) $y = ax + b$
 C) $y = ax + b(c^2)$
 D) $y = \sqrt{x} + b$

29.



In the graph above, $f(x)$ is the original function, and $g(x)$ is the graph of a transformation of $f(x)$.

One of the following is the equation for $g(x)$ in terms of $f(x)$. Which one is it?

- A) $g(x) = 1.2f(2x)$
 B) $g(x) = 1.2f\left(\frac{x}{2}\right)$
 C) $g(x) = f(2x) + 3$
 D) $g(x) = f\left(\frac{x}{2}\right) + 3$

30.

$$h = -16t^2 + 64t + 2$$

The function gives the height (in feet) of a football after t seconds. Which of the following statements is correct?

- A) The football is kicked from a height of 2 feet.
 B) The football reaches a maximum height of 64 feet.
 C) The football hits the ground after 6 seconds.
 D) It takes 4 seconds for the football to reach its maximum height.



DIRECTIONS

For questions 31-38, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

- 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. You will receive credit only if the circles are filled in correctly.
- Mark no more than one circle in any column.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or $7/2$.
(If $\boxed{3} \boxed{1} \boxed{/} \boxed{2}$ is entered into the grid, 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.

Answer: $\frac{3}{10}$

$\boxed{3}$	$\boxed{/}$	$\boxed{1}$	$\boxed{0}$
Write answer in boxes.			
$\boxed{/}$	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{\cdot}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{-}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{0}$	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
$\boxed{1}$	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
$\boxed{2}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{3}$	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fraction line
 Decimal point
 Negative sign
 Grid in result.

Answer: 1.2

$\boxed{1}$	$\boxed{\cdot}$	$\boxed{2}$
$\boxed{/}$	<input type="radio"/>	<input type="radio"/>
$\boxed{\cdot}$	<input type="radio"/>	<input checked="" type="radio"/>
$\boxed{-}$	<input type="radio"/>	<input type="radio"/>
$\boxed{0}$	<input type="radio"/>	<input type="radio"/>
$\boxed{1}$	<input checked="" type="radio"/>	<input type="radio"/>
$\boxed{2}$	<input type="radio"/>	<input checked="" type="radio"/>
$\boxed{3}$	<input type="radio"/>	<input type="radio"/>

Answer: 230 – either position is correct

$\boxed{2}$	$\boxed{3}$	$\boxed{0}$
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$\boxed{\cdot}$	<input type="radio"/>	<input type="radio"/>
$\boxed{-}$	<input type="radio"/>	<input type="radio"/>
$\boxed{0}$	<input type="radio"/>	<input checked="" type="radio"/>
$\boxed{1}$	<input type="radio"/>	<input type="radio"/>
$\boxed{2}$	<input checked="" type="radio"/>	<input type="radio"/>
$\boxed{3}$	<input type="radio"/>	<input checked="" type="radio"/>

$\boxed{2}$	$\boxed{3}$	$\boxed{0}$	$\boxed{}$
$\boxed{/}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{\cdot}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{-}$	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
$\boxed{0}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{1}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{2}$	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{3}$	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Acceptable ways to grid $\frac{1}{3}$ are:

$\boxed{1}$	$\boxed{/}$	$\boxed{3}$
$\boxed{/}$	<input type="radio"/>	<input checked="" type="radio"/>
$\boxed{\cdot}$	<input type="radio"/>	<input type="radio"/>
$\boxed{-}$	<input type="radio"/>	<input type="radio"/>
$\boxed{0}$	<input type="radio"/>	<input type="radio"/>
$\boxed{1}$	<input checked="" type="radio"/>	<input type="radio"/>
$\boxed{2}$	<input type="radio"/>	<input type="radio"/>
$\boxed{3}$	<input type="radio"/>	<input checked="" type="radio"/>

$\boxed{\cdot}$	$\boxed{3}$	$\boxed{3}$	$\boxed{3}$
$\boxed{/}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{\cdot}$	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{-}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{0}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{1}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{2}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$\boxed{3}$	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

NOTE: You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.



31. $|x - 3| = 5$
If x is negative, what is the value of x ?

32.

I	\$60
P	?
r	10%
t	2

The formula of simple interest $I = Prt$ is, where I is interest earned, P is the principal amount, r is the annual interest rate, t is the time in years.

- Solve the formula of P .
- Use the new formula to find the value of P in the table.

33. If $y = (\frac{1}{4})x - 5$ is parallel to the line $y = \frac{mx}{2} + 3$, what is the value of m in decimal form?

34. If $x^2 + 6x = 16$ and $x < 0$, then what is the value of $x - 2$?

35. Line A passes through point $(4, 2)$ and $(1, t)$. Line B, which is perpendicular to Line A, is expressed by the equation of $4x + 4y = k$, where k is a negative constant. What is the slope of Line C if it passes through $(t, 1)$ and the origin?



36. There are eleven farms in Coopersville. Of these, five produce eggs. If half of the farms that do not produce eggs do produce poultry, what is the greatest possible number of farms in Coopersville that produce poultry?

37. A square garden with an area of 64 square meters is enclosed by a walkway that is 2 meters wide. What is the area of the walkway?

38.

$$3x^2 + 3y^2 + 12x - 9y + 12 = 0$$

The equation of a circle in the xy -plane is shown above. What is the diameter of the circle?

STOP

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

Congratulations! You've completed the test.

Grading Your Practice SAT

Congratulations! You finished a full-length SAT Practice Test. Now it's time to see how you scored.

Step 1: Answer Key

The first step in grading your SAT Practice Test is to figure out how many questions you answered correctly. Use the answer key below to grade your test.

1. READING TEST

1. A	19. C	37. A
2. D	20. D	38. A
3. D	21. D	39. C
4. B	22. A	40. B
5. A	23. C	41. B
6. C	24. B	42. B
7. C	25. D	43. C
8. B	26. A	44. C
9. D	27. C	45. D
10. C	28. D	46. A
11. D	29. C	47. B
12. B	30. D	48. D
13. C	31. A	49. D
14. C	32. C	50. D
15. A	33. D	51. C
16. B	34. C	52. A
17. D	35. D	
18. B	36. D	

2. WRITING & LISTENING TEST

1. C	16. B	31. C
2. A	17. A	32. C
3. D	18. C	33. D
4. C	19. C	34. B
5. A	20. D	35. D
6. C	21. C	36. A
7. C	22. D	37. C
8. D	23. A	38. C
9. B	24. A	39. D
10. B	25. D	40. B
11. C	26. A	41. A
12. C	27. B	42. D
13. B	28. B	43. C
14. B	29. C	44. C
15. A	30. C	

3. MATH - NO CALCULATOR TEST

1. D	11. D
2. D	12. C
3. C	13. D
4. D	14. D
5. D	15. C
6. C	16. 6
7. B	17. 12
8. D	18. 42
9. D	19. 200,000
10. B	20. 9

4. MATH - CALCULATOR TEST

1. C	20. C
2. A	21. A
3. D	22. C
4. C	23. D
5. D	24. C
6. A	25. D
7. A	26. C
8. C	27. D
9. C	28. D
10. B	29. D
11. C	30. A
12. A	31. -2
13. B	32. 300
14. D	33. 0.5
15. B	34. -10
16. D	35. -1
17. D	36. 8
18. A	37. 80
19. D	38. 3

Step 2: Find Your Raw Score

Add up the number of questions that you answered correctly in each test to determine your raw score for that test (also known as your sectional sub-score). For example, if you answered 43 questions correctly on the Reading test, then your raw score for that test is 43. Simple, right?

Step 3: Find Your Scaled Score

Now that you know your raw subscores, it's time to approximate your scaled scores for each test. Use the table below to convert your raw score in each section into a scaled score.*

Here's how you do it:

- **To find your SAT Math Score**, add your two raw Math scores together, and then find the corresponding scaled score on the table below. That number is your SAT Math score.

For example, if you answered 18 Math (No Calculator) questions correctly, and 30 Math (Calculator) questions correctly, you would add 18 to 30, to get 48. Then find the scaled score that corresponds to 48 on the table, which is 680. This is your SAT Math Score.

- **To calculate your Evidence-Based Reading and Writing (EBRW) Score**, convert your raw Reading Score and your raw Writing and Language Score into two scaled scores, using the table. Add the two scaled scores together, and multiply the sum by 10. This is your SAT Evidence-Based Reading and Writing Score.

For example, if you answered 44 Reading questions correctly, and 28 Writing and Language questions correctly, your raw scores would be 44 and 28. These scaled scores would be 35 and 28, respectively. Add 35 and 28 to get 63, and multiply that by 10 to get your EBRW Score: 630.

*Each official SAT exam has a different raw-to-scaled score conversion chart, based on the performance of students on that particular test. But don't worry—this chart will give you a really good estimate of how you're likely to score on the SAT!

Raw Score (# of correct answers)	Scaled Math Test Score	Scaled Reading Test Score	Scaled Writing and Language Test Score
0	200	10	10
1	200	10	10
2	210	10	10
3	230	11	10
4	240	12	10
5	260	13	12
6	280	14	13
7	290	15	13
8	310	15	14
9	320	16	15
10	330	17	16
11	340	17	16

Raw Score (# of correct answers)	Scaled Math Test Score	Scaled Reading Test Score	Scaled Writing and Language Test Score
12	360	18	17
13	370	19	18
14	380	19	19
15	390	20	19
16	410	20	20
17	420	21	21
18	430	21	21
19	440	22	22
20	450	22	23
21	460	23	23
22	470	23	24
23	480	24	25
24	480	24	25
25	490	25	26
26	500	25	26
27	510	26	27
28	520	26	28
29	520	27	28
30	530	28	29
31	540	28	30
32	550	29	30
33	560	29	31
34	560	30	32
35	570	30	32
36	580	31	33
37	590	31	34
38	600	32	34
39	600	32	35
40	610	33	36
41	620	33	37
42	630	34	38
43	640	35	39
44	650	35	40
45	660	36	
46	670	37	
47	670	37	
48	680	38	
49	690	38	

Raw Score (# of correct answers)	Scaled Math Test Score	Scaled Reading Test Score	Scaled Writing and Language Test Score
50	700	39	
51	710	40	
52	730	40	
53	740		
54	750		
55	760		
56	780		
57	790		
58	800		

Step 4: Composite Score

Now for the moment of truth! Your composite score is your overall score on the SAT exam. To find your composite score, all you need to do is add your Math SAT score and your EBRW SAT score together. So if scored a 680 in Math and a 630 in EBRW, your Composite SAT score would be 1310!

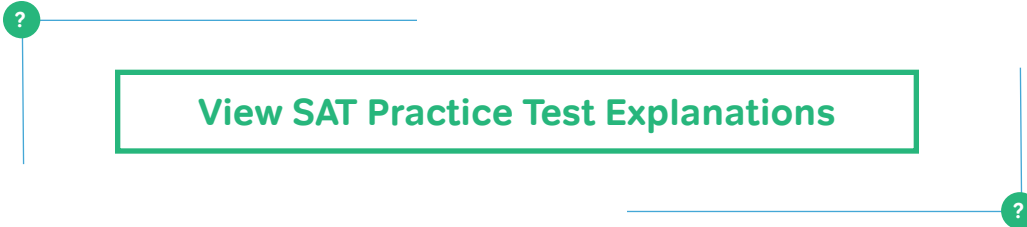
Have questions about SAT scoring? Check out our [SAT Score Calculator](#) to learn more!

SAT Practice Test PDF Explanations

The single best way to improve your SAT score is to learn from your mistakes. Now that you've looked at the Answer Key and determined your raw score, it's time to review the questions that you missed.

In [Magoosh SAT Prep](#), our SAT experts explain in detail how to answer each question and solve each problem. They break down the concepts and strategies needed to improve your score and show you how to avoid common tricks and traps.

Click the button below to see the text and video explanations for each question in this PDF.



Ready to take the next step towards your goal SAT score? [Sign up for Magoosh SAT Prep.](#)

SAT Practice Test Answer Sheet

Complete Mark 
Examples of Incomplete Marks



It is recommended that you use a No. 2 pencil. It is very important that you fill in the entire circle darkly and completely. If you change your response, erase as completely as possible. Incomplete marks or erasures may affect your score.

SECTION 1. READING TEST

1	A	B	C	D	14	A	B	C	D	27	A	B	C	D	40	A	B	C	D
2	A	B	C	D	15	A	B	C	D	28	A	B	C	D	41	A	B	C	D
3	A	B	C	D	16	A	B	C	D	29	A	B	C	D	42	A	B	C	D
4	A	B	C	D	17	A	B	C	D	30	A	B	C	D	43	A	B	C	D
5	A	B	C	D	18	A	B	C	D	31	A	B	C	D	44	A	B	C	D
6	A	B	C	D	19	A	B	C	D	32	A	B	C	D	45	A	B	C	D
7	A	B	C	D	20	A	B	C	D	33	A	B	C	D	46	A	B	C	D
8	A	B	C	D	21	A	B	C	D	34	A	B	C	D	47	A	B	C	D
9	A	B	C	D	22	A	B	C	D	35	A	B	C	D	48	A	B	C	D
10	A	B	C	D	23	A	B	C	D	36	A	B	C	D	49	A	B	C	D
11	A	B	C	D	24	A	B	C	D	37	A	B	C	D	50	A	B	C	D
12	A	B	C	D	25	A	B	C	D	38	A	B	C	D	51	A	B	C	D
13	A	B	C	D	26	A	B	C	D	39	A	B	C	D	52	A	B	C	D

SAT Practice Test Answer Sheet

Complete Mark ●
Examples of Incomplete Marks



It is recommended that you use a No. 2 pencil. It is very important that you fill in the entire circle darkly and completely. If you change your response, erase as completely as possible. Incomplete marks or erasures may affect your score.

SECTION 2. WRITING & LISTENING TEST

1	A	B	C	D	12	A	B	C	D	23	A	B	C	D	34	A	B	C	D
2	A	B	C	D	13	A	B	C	D	24	A	B	C	D	35	A	B	C	D
3	A	B	C	D	14	A	B	C	D	25	A	B	C	D	36	A	B	C	D
4	A	B	C	D	15	A	B	C	D	26	A	B	C	D	37	A	B	C	D
5	A	B	C	D	16	A	B	C	D	27	A	B	C	D	38	A	B	C	D
6	A	B	C	D	17	A	B	C	D	28	A	B	C	D	39	A	B	C	D
7	A	B	C	D	18	A	B	C	D	29	A	B	C	D	40	A	B	C	D
8	A	B	C	D	19	A	B	C	D	30	A	B	C	D	41	A	B	C	D
9	A	B	C	D	20	A	B	C	D	31	A	B	C	D	42	A	B	C	D
10	A	B	C	D	21	A	B	C	D	32	A	B	C	D	43	A	B	C	D
11	A	B	C	D	22	A	B	C	D	33	A	B	C	D	44	A	B	C	D

SAT Practice Test Answer Sheet

Complete Mark 
Examples of Incomplete Marks



It is recommended that you use a No. 2 pencil. It is very important that you fill in the entire circle darkly and completely. If you change your response, erase as completely as possible. Incomplete marks or erasures may affect your score.

SECTION 3. MATH - NO CALCULATOR TEST

1	A	B	C	D	5	A	B	C	D	9	A	B	C	D	13	A	B	C	D
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	A	B	C	D	6	A	B	C	D	10	A	B	C	D	14	A	B	C	D
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	A	B	C	D	7	A	B	C	D	11	A	B	C	D	15	A	B	C	D
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	A	B	C	D	8	A	B	C	D	12	A	B	C	D					
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					

SAT Practice Test Answer Sheet

Complete Mark 
Examples of Incomplete Marks



It is recommended that you use a No. 2 pencil. It is very important that you fill in the entire circle darkly and completely. If you change your response, erase as completely as possible. Incomplete marks or erasures may affect your score.

SECTION 3. MATH - NO CALCULATOR TEST (continued)

Only answers that are gridded will be scored. You will not receive credit for anything written in the boxes.

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Only answers that are gridded will be scored. You will not receive credit for anything written in the boxes.

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SAT Practice Test Answer Sheet

Complete Mark ●
Examples of Incomplete Marks



It is recommended that you use a No. 2 pencil. It is very important that you fill in the entire circle darkly and completely. If you change your response, erase as completely as possible. Incomplete marks or erasures may affect your score.

SECTION 4. MATH - CALCULATOR TEST

1	A	B	C	D	9	A	B	C	D	17	A	B	C	D	25	A	B	C	D
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2	A	B	C	D	10	A	B	C	D	18	A	B	C	D	26	A	B	C	D
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	A	B	C	D	11	A	B	C	D	19	A	B	C	D	27	A	B	C	D
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	A	B	C	D	12	A	B	C	D	20	A	B	C	D	28	A	B	C	D
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	A	B	C	D	13	A	B	C	D	21	A	B	C	D	29	A	B	C	D
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	A	B	C	D	14	A	B	C	D	22	A	B	C	D	30	A	B	C	D
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7	A	B	C	D	15	A	B	C	D	23	A	B	C	D					
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
8	A	B	C	D	16	A	B	C	D	24	A	B	C	D					
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					

SAT Practice Test Answer Sheet

Complete Mark 
Examples of Incomplete Marks



It is recommended that you use a No. 2 pencil. It is very important that you fill in the entire circle darkly and completely. If you change your response, erase as completely as possible. Incomplete marks or erasures may affect your score.

SECTION 4. MATH - CALCULATOR TEST (continued)

Only answers that are gridded will be scored. You will not receive credit for anything written in the boxes.

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Only answers that are gridded will be scored. You will not receive credit for anything written in the boxes.

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