

Fall 2019 SAT Workshops

BPS Community Schools



Courier College Prep

You've Chosen...Wisely

'Standardized Best'
SAT Study & Strategy Guide



Courier College Prep

You've Chosen...Wisely

“Standardized Best” Online Resources for SAT Preparation

CONTENT REVIEW



The College Board breaks down the entire SAT here: <https://collegereadiness.collegeboard.org/sat?navid=sat-nsat>



Khan Academy partnered with the College Board and offers hundreds of video tutorials in addition to quizzes, tests and practice material for the SAT. <https://www.khanacademy.org/test-prep/sat>

GUIDANCE, INSTRUCTION & STRATEGIES



Prep Scholar is an incredible site for SAT insights, strategy, tips and tricks. One of the best of its kind: <https://blog.prepscholar.com/the-ultimate-sat-study-guide-for-sat-prep>

CRUNCHING NUMBERS



NICHE is a very user-friendly site with a clean and simple interface where you can explore college rankings, reviews and statistics, in addition to fantastic scholarship information. Worth bookmarking: <https://niche.com/>



College Simply matches SAT scores and colleges which have historically accepted students for each score. Search by region or state: <http://www.collegesimply.com/guides/colleges-by-test-score/>

The SAT - What to Expect

The SAT is made up of four sections - Reading/Writing/ Math Non-Calculator/Math Calculator. The essay is optional. There are four answer choices on the multiple choice questions and no penalty for wrong answers.

The SAT clocks in @ **3 hours** without the optional essay, **3 hours 50 minutes** if you write it.

Reading and Writing are combined to give a score between 200-800 and the Math sections are combined and scored in the same way. 1600 is a perfect score. The national average is 1000.



CONTENT

The Reading Section – 52 Questions (65 minutes) – 5 Passages

- There will be no sentence completion questions. The SAT will test more commonly used vocabulary within the context of passages.
- The passages will include charts, graphs, and pictures. You may be asked about the relationship between a passage and the data being represented.
- You are expected to practice evidence-based reading. You may be asked to find a specific line within a passage that demonstrates style, tone, point of view, or theme.

The Writing and Language Section – 44 Questions (35 minutes) – 4 Passages with 11 questions each

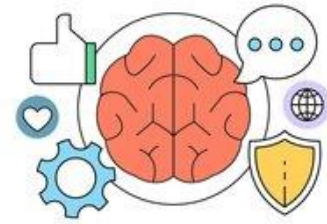
- The SAT liked the ACT's English section so much they stole it lock, stock, and barrel. You'll be asked to edit the grammar of sentences within passages, rather than of stand-alone sentences. There will also be graphs, pictures, or tables.

The Math Section – 58 Questions (80 minutes) The Math section that doesn't allow a calculator has a time limit of 25 minutes. The Calculator Math section has a time limit of 55 minutes.

- The 'language/structure' of the SAT math questions is closely aligned with the architecture of the Common Core and emphasizes fluency and analysis. As for new concepts, the SAT features more data analysis (scatterplots, lines of best fit, frequency distributions, histograms, and nonlinear associations) and science-oriented questions. The SAT will focus more on algebra and data analysis and less on geometry.
- On the SAT, you'll have 80 minutes to complete 58 items, which means you'll have more time per question than the time given to you on the previous PSAT, SAT, or the current ACT. **Time management is critical** and practice will help to set the pace that works for you.

Where is My Mind? Being able to answer this

question honestly and accurately as you approach, prepare for and take standardized tests is essential because these tests don't only measure what you know; they also measure how well you take the tests. Your mental landscape is just as important as your knowledge base and command of the content.



Students who do not genuinely believe that they can improve and do well on a given task or assignment are less likely to do. There's a direct correlation between the way you perceive preparing the SAT and the improvement possible. Research shows that between 15 and 30 percent of a test taker's success depends on his or her motivation. **YOU HAVE TO WANT IT!**

Commitment, Focus and Meaningful Practice will help develop a resilient, reliable Mindset that replaces fear and anxiety with sureness and focus, allowing you to apply all you've learned calmly, confidently, and consistently.

How to Build A Success Mindset –

Trust the Process – Don't start by thinking about taking an entire four hour test with 150 questions on a beautiful Saturday in May. Break that task up into parts that are manageable and start by saying "What can I do today to improve?" What's in front of me and how can I get better at it?" Winning the little matchups leads to confidence and positive forward momentum. Win the next step. It's **You vs. Yesterday.**

Replace the Hate – There's no place for hate. It rents valuable space in the house in the front of your brain where working memory is located. HATE is a horrible tenant. It invites all of its awful friends -Worry, Anxiety, Uncertainty, Negativity – over to party, leaving less room for what should be happening: staying positive and focused as you effectively use your strategies and stored information in a rational, flexible and intuitive way.

Think About How You're Thinking – An awareness of how you think and respond to what's being asked of you in the moment can greatly improve your test performance. "I've seen this before; this is what I do." "I feel really good about my timing. "This one has me stumped. I'm taking an educated guess." Students who are able to self-reflect and recognize when thinking breaks down end up becoming not only better test takers, but also better at overall problem solving both in and out of the classroom.

Silence Your Inner Critic - Everybody has one, that little judgmental voice that tells you to give up, that you're never going to accomplish what you're setting out to do, that it's just not meant to be. Hit the MUTE button hard. Negative thoughts/feelings and self-doubt will sabotage progress and prevent optimal performance. The best way to silence that voice - having confidence in the system you've developed and the personal grab bag of strategies you're bringing with you to each section.

“Home Cooking”: The Standardized Best R.E.C.I.P.E

When it comes to standardized test preparation, the right combination of these “ingredients” will put you in the best possible position to succeed.

READ: Extensively, Daily: Try to read an article a day from a newspaper like the New York Times or magazine such as The Economist or Scientific America, in print or online. You’ll be familiarizing yourself with the type of content the SAT uses with the added benefit of exposing you to more complex sentence constructions, grammar, and vocabulary. Make it a habit. Your scores will go up.

ELIMINATE Surprises: By becoming aware of the rules and patterns the test writers must follow, you’ll be able to anticipate what’s coming and execute accordingly. Remember, familiarity leads to confidence and standardized tests teach you how to take them. The more you practice, the more intuitive your thinking will become.

COMMITT: Success depends on how much you want it, and by “it” I’m talking about the best score you’re capable of, a better shot at the college of your choice, scholarships, financial aid, sense of accomplishment, pride, etc. You need to be motivated, driven, and focused. You need make preparation a priority by operating in an “Excuse-Free” zone. Setup a weekly routine and stick to it.

IDENTIFY your weak spots. Be specific. Why are you missing certain questions? Is it a content issue, an approach or strategy mistake or a careless error? Track your mistakes. Look for patterns of weakness and drill those types of problems until they’re strengths. Search and Destroy. Trust this process. Watch your scores go up.

PRACTICE: Preparation is Separation. The more meaningful practice you put in, the more official, timed, full-length Practice Tests you take, the better your chances of realizing your very best scores. You should take practice tests until you’ve proven to yourself that you can hit your benchmarks every time.

EXPECT Success: If you’ve put in the amount of practice necessary to consistently meet or exceed the target scores you’ve set for yourself, you should go into the test completely confident in your ability to do the same on any given Saturday. Your mindset should be positive and optimistic. Take the time the night before and the morning of to visualize yourself moving through the test with focus, firing on all cylinders, not getting rattled by troublesome questions, and taking care of business.

Here's one of my all-time favorite quotes from a great SAT preparation website, The College Panda:

**IN EVERY
MISTAKE
THERE IS A
POTENTIAL
FOR GROWTH.**

*“Failure is making 100 mistakes on the test.
Success is making 1000 mistakes before the test.”*

Understanding why you missed a question is the most critical component to improving your score. The beauty of standardization is that the exact same concepts are tested again and again, so analyzing a mistake and learning from it turns a weakness into a strength and with strength comes confidence.

Thoughtful Practice Involves Tracking Your Mistakes and then Digging Down Deep to Understand the Reason for Missing Each Question

Almost Every Mistake Falls Within One of These Categories:

Content/Concept Issue: You either didn't know what was being asked or you misunderstood the dominant concept.

Question Comprehension Issue: The way the question was asked was too confusing and/or complicated, you misunderstood the wording or weren't sure what you should be doing or how to approach it.

Careless Mistakes: You misread the question, missed a key part of the question, made a simple math error, or were just guilty of sloppy thinking.

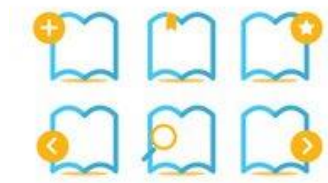
Under Pressure/Timing Issue: Not pacing yourself, running out of time, spending far too long on certain questions, not having a reliable internal clock.



If you put the time and effort into this process, you will be rewarded. Remember – standardized test scores can result in significant merit-based awards, so DO WORK and Turn Those Mistakes Into Gold!!!

The SAT Reading Section

The SAT Reading Test is 65 minutes long and consists of 4 individual passages and 1 pair of passages. Each passage or pair will be between 500 and 750 words and will have 10 or 11 questions, for a total of 52 questions for the entire section.



In every SAT Reading Test there will be 2 passages which are accompanied by graphics, and 1 or 2 graphics for each of those two passages. You will be asked about how these graphics and how they relate to the passage.

Questions – They won't be presented in order of difficulty. Many of these questions will have line references, which will point you to the material being discussed in the question. You'll be asked a variety of questions for each passage, but the question types themselves will be repeated often.

There are also two question types that will appear with every passage. You will always be asked two Words in Context questions, and two Evidence questions for each passage or pair of passages. With these “**Best Evidence**” questions, you'll be asked to defend your answer in a previous question with evidence/line references from the text. These questions will make you double check your thought process and confirm that your answer had support in the text, hopefully helping you to avoid careless mistakes.

Since the subject matter is pre-determined, you'll know what to expect and this is a big change for the better. The Reading section consists of:

One passage dealing with US and World Literature
Two passages dealing with History and Social Studies
Two passages dealing with Science

While there are no longer any Sentence Completion questions, you'll be tested on the meaning of words in the context of the sentence/passage.

The Takeaway – At 65 minutes, the Reading section will require you to pay attention and focus for much longer than either the old SAT or the ACT. They are giving you much more time per question to answer, but the content might be more challenging. Read widely and often to improve your comprehension!

The Great Rearrangement - New Order



The SAT Reading is the first section you encounter when you open your test booklet. It consists of 5 passages – one from US or World Literature, two from History and Social Studies, and two deal with Science. The first one is ALWAYS the literature passage.

Most students start right there, reading the passages and answering the questions in order. But that might not be the smartest way to start your day!

Why? Remember how important the right mental landscape is to doing well. You always want to play to your strengths. Feeling good about those opening minutes can provide the positive momentum you need to attack the rest of the sections with confidence. So try this - Read the blurb. Scan the text quickly. If this is what you see –

“Lady Carlotta promptly betook her to the roadway, and put rather a different complexion on the struggle. Certain of her acquaintances were wont to give her plentiful admonition as to the undesirability of interfering on...

or

“Unlike the gold which needed nothing, and must be worshipped in close-locked solitude—which was hidden away from the daylight, was deaf to the song of birds, and started to no human tones—Eppie was a creature of endless claims....

-and you're just not feeling it, quickly go to the next passage. It's usually a social science one. In fact, right after the Lady Carlotta passage is one about public transportation written in 2012. The passage following the *Silas Marner* excerpt was written in 2013 and is about how technology is destroying jobs. The language and content could prove to be much more relatable, approachable and easy to understand. By starting with a passage –or two –that was written in the last twenty years, you'll have a better chance of feeling like you're in control of the test rather than feeling like the test has control of you. And that's our optimal state of performance!



So try this strategy when you're practicing and see if it works for you. You'll have to deal with the passage you skip eventually, but starting where YOU WANT TO START will help make the Reading section work for you.

HOW to TAKE a TeXt-RAY



In front of you is a passage. Don't read it. Go right to the questions. Circle every proper noun, date, numbers, and any words in quotes. If the question has a line reference, go right to the passage and tag or bracket it. Keep going. Don't worry about the evidence based-questions right now; there's a separate strategy for those. After this **Sneak Preview** you may already have a basic idea of what the passage is about.



Now go and read the blurb at the top. Don't skip this step. So many students skip this step. It often identifies the topic and puts what you're about to read in context. Not always, but enough to start things off right, especially for Passage 1/Passage 2 content.



Now meet Betty H. – your TeXt-ray Tech. Write **BTY:H** at the top of the passage. As you read, be on the lookout for the words **BUT, BECAUSE, THUS, THEREFORE, YET AND HOWEVER**. Also note anytime you see a colon. These signal two things test-writers tend to focus on – transitions and explanations. Also, as you read you'll come across Neon Signs, those phrases that signal something you can almost bet the test-writers will ask about: “Most importantly”, “As a matter of fact”, “As a result”, “For instance/For example”.



Lastly, remember where the main points of a passage are found: the last lines of the intro (usually the thesis of the passage), the opening sentences of paragraphs, and the conclusion.

After you've read the passage, it should look like it's really been worked over – checks and underlines, brackets, circles and stars.

These are things your Text-Ray will reveal, giving you a map you'll now access to answer the questions.

Practice this. It's a battle tested strategy that has helped students significantly raise their reading scores.

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.

This passage is adapted from Cristina Henríquez, *The Book of Unknown Americans*. ©2014 by Cristina Henríquez.

One afternoon I made chicharrones and carried them over to Celia’s apartment.

Line She clapped her hands together in delight when she saw me and motioned for me to come inside.

5 “These are for you,” I said, holding out a foil-covered plate.

She lifted a corner of the foil and sniffed. “Sabroso,” she said.

I loved how full her home felt, embroidered
10 pillows on the couches, a curio stacked with milk glass bowls and recuerdos and folded tablecloths, red votives along the windowsills, spidery potted plants, woven rugs, unframed posters of Panamá beaches on the walls, a box of rinsed bottles on the floor, a small
15 radio on top of the refrigerator, a plastic bag filled with garlic hanging from a doorknob, a collection of spices clustered on a platter on the counter. The great accumulation of things almost hid the cracks in the walls and the stains on the floor and the scratches
20 that clouded the windows.

“Mi casa es tu casa,” Celia joked as I looked around. “Isn’t that what the Americans say?”

She poured cold, crackling Coca-Colas for both of us, and we sat on the couch, sipping them and taking
25 small bites of the chicharrones. She looked just as she had the first time I met her: impeccably pulled together, with a face full of makeup, fuchsia lips, chestnut-brown chin-length hair curled at the ends

and tucked neatly behind her ears, small gold
30 earrings. So unlike most of my friends at home, who used nothing but soap on their faces and aloe on their hands and who kept their hair pulled into ponytails, like mine, or simply combed after it had been washed and left to air-dry.

35 Celia told me about the provisions we would need for winter—heavy coats and a stack of comforters and something called long underwear that made me laugh when she tried to describe it—and about a place called the Community House where they
40 offered immigrant services if we needed them. She gossiped about people in the building. She told me that Micho Alvarez, who she claimed always wore his camera around his neck, had a sensitive side, despite the fact that he might look big and burly, and that
45 Benny Quinto, who was close friends with Micho, had studied to be a priest years ago. She said that Quisqueya dyed her hair, which was hardly news—I had assumed as much when I met her. “It’s the most unnatural shade of red,” Celia said. “Rafael
50 says it looks like she dumped a pot of tomato sauce on her head.” She chortled. “Quisqueya is a busybody, but it’s only because she’s so insecure. She doesn’t know how to connect with people. Don’t let her put you off.”

55 Celia began telling me about when she and Rafael and her boys had come here from Panamá, fifteen years ago, after the invasion.

“So your son, he was born there?” I asked.

“I have two boys,” she said. “Both of them were
60 born there. Enrique, my oldest, is away at college on
a soccer scholarship. And there’s Mayor, who you
met. He’s nothing at all like his brother. Rafa thinks
we might have taken the wrong baby home from the
hospital.” She forced a smile. “Just a joke, of course.”

65 She stood and lifted a framed picture from the
end table. “This is from last summer before Enrique
went back to school,” she said, handing it to me.
“Micho took it for us.”

In the photo were two boys: Mayor, whom I
70 recognized from the store, small for his age with
dark, buzzed hair and sparkling eyes, and Enrique,
who stood next to his brother with his arms crossed,
the faint shadow of a mustache above his lip.

“What about you?” Celia asked. “Do you have
75 other children besides your daughter?”

“Only her,” I said, glancing at my hands around
the glass. The perspiration from the ice had left a ring
of water on the thigh of my pants.

80 “And she’s going . . .” Celia trailed off, as though
she didn’t want to say it out loud.

“To Evers.”

Celia nodded. She looked like she didn’t know
what to say next, and I felt a mixture of
embarrassment and indignation.

85 “It’s temporary,” I said. “She only has to go there
for a year or two.”

“You don’t have to explain it to me.”

“She’s going to get better.”

“I’ve heard it’s a good school.”

90 “I hope so. It’s why we came.”

Celia gazed at me for a long time before she said,
“When we left Panamá, it was falling apart. Rafa and
I thought it would be better for the boys to grow up
here. Even though Panamá was where we had spent
95 our whole lives. It’s amazing, isn’t it, what parents
will do for their children?”

She put her hand on mine. A benediction. From
then, we were friends.

1

The description of Celia’s apartment in lines 9-20 is primarily intended to

- A) evoke a sense of coziness and comfort.
- B) reflect the hectic and unpredictable nature of life in Celia’s building.
- C) extol the ready availability of goods in the United States.
- D) establish that Celia is an avid collector.

2

According to the passage, which fact about Celia’s neighbors does the narrator know before she visits Celia’s apartment?

- A) Micho Alvarez and Benny Quinto are close friends.
- B) Benny Quinto once studied to be a priest.
- C) Micho Alvarez has a sensitive side.
- D) Quisqueya dyes her hair.

3

When Celia tells the narrator not to let Quisqueya “put you off” (line 54), she most nearly means that the narrator should not

- A) be offended by Quisqueya.
- B) be deceived by Quisqueya.
- C) let Quisqueya avoid her.
- D) let Quisqueya impose on her.

4

Which choice best describes the narrator’s relationship with Celia’s sons?

- A) The narrator knows Celia’s sons because they are friends with the narrator’s daughter.
- B) The narrator’s daughter attends school with Mayor.
- C) The narrator has seen Mayor in person, but she has seen Enrique only in Celia’s photo.
- D) The narrator has seen Enrique play soccer, but she has never seen Mayor.

5

Which choice provides the best evidence for the answer to the previous question?

- A) Line 58 (“So . . . asked”)
- B) Lines 59-62 (“I have . . . brother”)
- C) Lines 65-68 (“She stood . . . us”)
- D) Lines 74-75 (“What . . . daughter”)

6

Celia recounts Rafa’s joke (lines 61-64) primarily in order to

- A) endear Rafa to the narrator.
- B) impress the narrator with her quick wit.
- C) stress how different her sons are.
- D) defuse a tense situation.

7

Based on the passage, it is most reasonable to infer that Celia knows the answer to which question about the narrator’s family before the narrator visits her apartment?

- A) How many children does the narrator have?
- B) Where does the narrator’s daughter go to school?
- C) What is the narrator’s profession?
- D) How long have the narrator and her family lived in the United States?

8

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 79-80 (“And . . . loud”)
- B) Lines 82-84 (“Celia . . . indignation”)
- C) Lines 92-94 (“When . . . here”)
- D) Lines 95-96 (“It’s amazing . . . children”)

9

Based on the passage, it can reasonably be inferred that Celia tells the narrator about leaving Panama (lines 91-96) primarily to

- A) encourage the narrator to share her story of immigration.
- B) remind the narrator of the reasons they both immigrated to the United States.
- C) console the narrator by describing how Celia’s family has prospered since they left.
- D) assure the narrator that she understands and empathizes with her.

10

In line 97, the word “benediction” primarily serves to

- A) stress the importance of religion to Celia and the narrator.
- B) imply that the narrator views Celia as an authority figure.
- C) emphasize how meaningful Celia’s gesture was for the narrator.
- D) demonstrate how eloquently Celia spoke during her conversation with the narrator.

Questions 11-21 are based on the following passage and supplementary material.

This passage is adapted from Wray Herbert, “Extremist Politics: Debating the Nuts and Bolts.” ©2012 by TheHuffingtonPost.com, Inc.

Voters need to understand the prosaic details of complex policies. Most have staked out positions on these issues, but they are not often reasoned positions, which take hard intellectual work. Most citizens opt instead for simplistic explanations, assuming wrongly that they comprehend the nuances of issues.

Psychological scientists have a name for this easy, automatic, simplistic thinking: the illusion of explanatory depth. We strongly believe that we understand complex matters, when in fact we are clueless, and these false and extreme beliefs shape our preferences, judgments, and actions—including our votes.

Is it possible to shake such deep-rooted convictions? That’s the question that Philip Fernbach, a psychological scientist at the University of Colorado’s Leeds School of Business, wanted to explore. Fernbach and his colleagues wondered if forcing people to explain complex policies in detail—not cheerleading for a position but really considering the mechanics of implementation—might force them to confront their ignorance and thus weaken their extremist stands on issues. They ran a series of lab experiments to test this idea.

They started by recruiting a group of volunteers in their 30s—Democrats, Republicans, and Independents—and asking them to state their positions on a variety of issues, from a national flat tax to a cap-and-trade system for carbon emissions. The volunteers indicated how strongly they felt about each issue and also rated their own understanding of the issues. Then the volunteers were instructed to write elaborate explanations of two issues. If the issue was cap and trade, for example, they would first explain precisely what cap and trade means, how it is implemented, whom it benefits and whom it could hurt, the sources of carbon emissions, and so forth. They were not asked for value judgments about the policy or about the environment or business, but only for a highly detailed description of the mechanics of the policy in action.

Let’s be honest: Most of us never do this.

Fernbach’s idea was that such an exercise would force many to realize just how little they really know

about cap and trade, and confronted with their own ignorance, they would dampen their own enthusiasm. They would be humbled and as a result take less extreme positions. And that’s just what happened. Trying—and failing—to explain complex policies undermined the extremists’ illusions about being well-informed. They became more moderate in their views as a result.

Being forced to articulate the nuts and bolts of a policy is not the same as trying to sell that policy. In fact, talking about one’s views can often strengthen them. Fernbach believes it’s the slow, cognitive work—the deliberate analysis—that changes people’s judgments, but he wanted to check this in another experiment. This one was very similar to the first, but some volunteers, instead of explaining a policy, merely listed reasons for liking it.

The results were clear. Those who simply listed reasons for their positions—articulating their values—were less shaken in their views. They continued to think they understood the policies in their complexity, and, notably, they remained extreme in their passion for their positions.

Polarization tends to reinforce itself. People are unaware of their own ignorance, and they seek out information that bolsters their views, often without knowing it. They also process new information in biased ways, and they hang out with people like themselves. All of these psychological forces increase political extremism, and no simple measure will change that. But forcing the candidates to provide concrete and elaborate plans might be a start; it gives citizens a starting place.

Figure 1

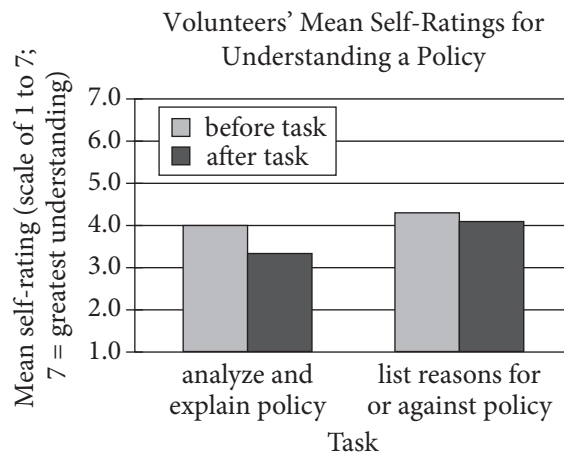
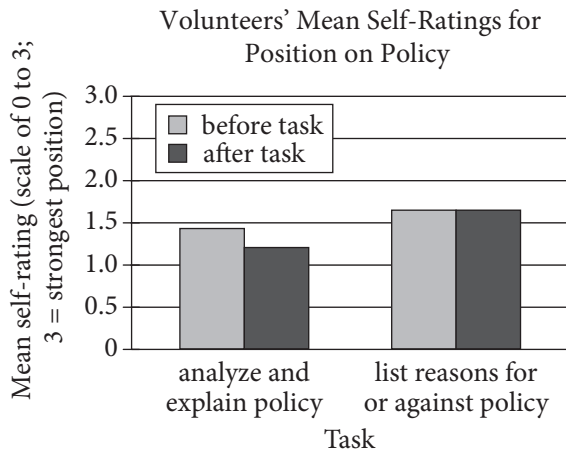


Figure 2

Figures adapted from Philip Fernbach et al., "Political Extremism Is Supported by an Illusion of Understanding." ©2013 by Philip Fernbach et al.

11

A central idea discussed in the passage is that

- A) articulating the reasons for holding an opinion can cause people to decide that they are wrong.
- B) the process of describing an issue in detail can make people more moderate in their views about the issue.
- C) most people are not truly interested in understanding complex ideas.
- D) people are likely to understate their most passionately held positions to avoid offending others.

12

Over the course of the passage, the main focus shifts from

- A) a discussion of a long-standing problem, to a report that discredits previous attempts to address that problem, and then to a proposal for future action.
- B) an introduction of a phenomenon, to a description of experiments concerning that phenomenon, and then to a recommendation based on the results of the experiments.
- C) an explanation of two competing theories for a certain behavior, to a recap of a study designed to determine which theory is correct, and then to a general account of a field's future.
- D) an observation of a trend, to an analysis of its causes, and then to a proposal for a research study to validate the analysis.

13

As used in line 9, "illusion" most nearly means

- A) misconception.
- B) dream.
- C) charade.
- D) phantom.

14

As used in line 13, "shape" most nearly means

- A) plan.
- B) model.
- C) influence.
- D) modify.

15

The main purpose of the fourth paragraph (lines 26-42) is to

- A) provide support for a theory.
- B) defend the need for a research study.
- C) outline the specifics of an experiment.
- D) discuss the complexity of a particular issue.

16

The passage implies that when conducting his laboratory work, Fernbach would have been most surprised by which finding?

- A) No link was found between the complexity of an issue and the strength of the volunteers' positions.
- B) After volunteers were asked to analyze a complicated political issue, their understanding of it did not increase.
- C) When volunteers were asked to list their reasons for endorsing a particular policy, their views were generally unaffected by the exercise.
- D) When volunteers were asked questions about complex issues, those with the most extreme views were found to have the best overall understanding of them.

17

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 26-30 ("They started . . . emissions")
- B) Lines 34-38 ("If the . . . forth")
- C) Lines 39-42 ("They . . . action")
- D) Lines 44-49 ("Fernbach's . . . positions")

18

Based on the passage, which action would most likely reduce political extremism among the citizenry?

- A) Forming organized groups of people who share their most deeply held convictions
- B) Requiring that politicians explain their proposed policies in detail before an election is held
- C) Promoting awareness of charities that provide opportunities to donate money to worthy but underfunded causes
- D) Hosting events that encourage people who hold opposing points of view to interact with one another

19

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 65-68 ("They continued . . . positions")
- B) Lines 69-72 ("People . . . knowing it")
- C) Lines 72-74 ("They . . . themselves")
- D) Lines 76-78 ("But forcing . . . place")

20

According to figure 1, which statement best describes the change in the mean self-ratings of the volunteers after they were asked to analyze and explain a policy?

- A) They became more extreme in their position on the policy.
- B) They became more reluctant to justify a particular viewpoint.
- C) They became less confident in their understanding of the policy.
- D) They became less interested in the policy.

21

According to both the passage and figure 2, making a list of reasons for or against a policy has little impact on an individual's

- A) position on an issue.
- B) interest in an issue.
- C) opinion about people holding differing views.
- D) likelihood to vote in an election.

Questions 22-32 are based on the following passage and supplementary material.

This passage is adapted from "Rare Woodland Plant Uses 'Cryptic Coloration' to Hide from Predators." ©2009 by American Journal of Botany, Inc.

It is well known that some animal species use camouflage to hide from predators. Individuals that are able to blend in to their surroundings and avoid being eaten are able to survive longer, reproduce, and thus increase their fitness (pass along their genes to the next generation) compared to those who stand out more. This may seem like a good strategy, and fairly common in the animal kingdom, but who ever heard of a plant doing the same thing?

In plants, the use of coloration or pigmentation as a vital component of acquiring food (e.g., photosynthesis) or as a means of attracting pollinators (e.g., flowers) has been well studied. However, variation in pigmentation as a means of escaping predation has received little attention. Matthew Klooster from Harvard University and colleagues empirically investigated whether the dried bracts (specialized leaves) on a rare woodland plant, *Monotropsis odorata*, might serve a similar purpose as the stripes on a tiger or the grey coloration of the wings of the peppered moth: namely, to hide.

"*Monotropsis odorata* is a fascinating plant species, as it relies exclusively upon mycorrhizal fungus, that associates with its roots, for all of the resources it needs to live," notes Klooster. "Because this plant no longer requires photosynthetic pigmentation (i.e., green coloration) to produce its own energy, it is free to adopt a broader range of possibilities in coloration, much like fungi or animals."

Using a large population of *Monotropsis odorata*, Klooster and colleagues experimentally removed the dried bracts that cover the 3- to 5-cm tall stems and flower buds of these woodland plants. The bracts are a brown color that resembles the leaf litter from which the reproductive stems emerge and cover the pinkish-purple colored buds and deep purple stems. When Klooster and colleagues measured the reflectance pattern (the percentage of light reflected at various wavelengths) of the different plant parts, they indeed found that the bracts functioned as camouflage, making the plant blend in with its surroundings; the bract reflectance pattern closely resembled that of the leaf litter, and both differed from that of the reproductive stem and flowers

hidden underneath the bracts. Furthermore, they experimentally demonstrated that this camouflage actually worked to hide the plant from its predators and increased its fitness. Individuals with intact

50 bracts suffered only a quarter of the herbivore damage and produced a higher percentage of mature fruits compared to those whose bracts were removed.

“It has long been shown that animals use cryptic coloration (camouflage) as a defense mechanism to
55 visually match a component of their natural environment, which facilitates predator avoidance,” Klooster said. “We have now experimentally demonstrated that plants have evolved a similar strategy to avoid their herbivores.”

60 Drying its bracts early to hide its reproductive parts is a good strategy when the stems are exposed to predators for long periods of time: all the other species in the subfamily Monotropeoideae have colorful fleshy bracts and are reproductively active
65 for only a quarter of the length of time. Somewhat paradoxically, however, *Monotropsis odorata* actually relies on animals for pollination and seed dispersal. How does it accomplish this when it is disguised as dead leaf material and is able to hide so well? The
70 authors hypothesize that the flowers emit highly fragrant odors that serve to attract pollinators and seed dispersal agents; indeed they observed bumble bees finding and pollinating many reproductive stems that were entirely hidden by the leaf litter itself.

Figure 1

Reflectance Patterns of Leaf Litter and *Monotropsis odorata* Structures

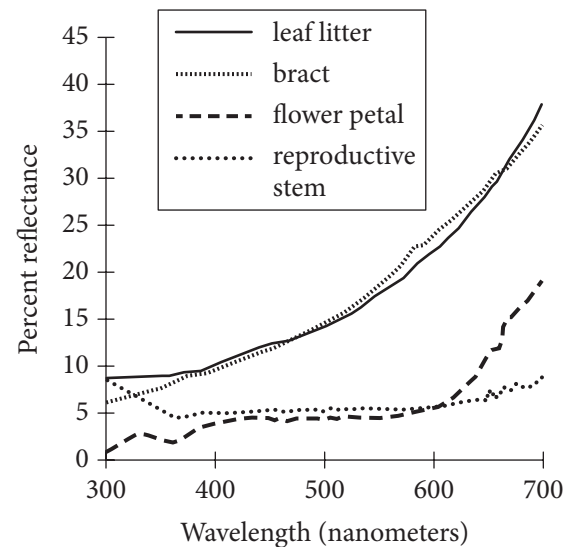
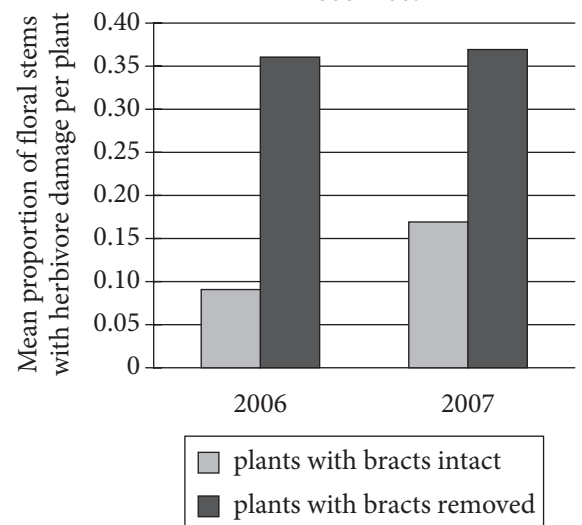


Figure 2

Floral Herbivore Damage to *Monotropsis odorata* Plants, 2006–2007



Figures adapted from Matthew R. Klooster et al., “Cryptic Bracts Facilitate Herbivore Avoidance in the Mycoheterotrophic Plant *Monotropsis odorata*.” ©2009 by American Journal of Botany, Inc.

22

The main purpose of the passage is to

- A) contrast the activities of plant species that rely on photosynthesis with the activities of those that do not.
- B) explore the attempts of scientists to understand the means by which plants attract pollinators.
- C) describe a study illuminating a defensive strategy of a particular species of plant.
- D) explain the results of experiments comparing the function of color in plants and in animals.

23

Which choice best supports the idea that the ability of a species to use camouflage effectively can provide an evolutionary advantage?

- A) Lines 1-2 (“It is . . . predators”)
- B) Lines 2-7 (“Individuals . . . more”)
- C) Lines 7-9 (“This . . . thing”)
- D) Lines 10-13 (“In plants . . . studied”)

24

The passage indicates that compared with other functions of coloration in plants, camouflage in plants has

- A) provided scientists with a deeper understanding of potential food sources.
- B) made use of a wider variety of distinctive shades of colors.
- C) proved to be a less effective defense against predators.
- D) been the subject of a smaller number of scientific investigations.

25

In lines 20-21, the references to the tiger and the moth serve mainly to

- A) provide examples of animal species with characteristics analogous to those of the plant investigated in the passage.
- B) offer a contrast between the defensive strategies of animals and the strategies of the plant examined in the passage.
- C) suggest a new possibility for applying the plant research discussed in the passage to the animal world.
- D) defend the work described in the passage against those who had criticized the inclusion of certain animals in the interpretation of the findings.

26

It can most reasonably be inferred from the passage that the nutrient requirements of many plants have the consequence of

- A) exaggerating the plants’ coloration patterns.
- B) limiting the plants’ defensive options.
- C) increasing the plants’ energy consumption.
- D) narrowing the plants’ potential habitats.

27

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 16-21 (“Matthew . . . hide”)
- B) Lines 22-25 (“*Monotropis* . . . Klooster”)
- C) Lines 25-30 (“Because . . . animals”)
- D) Lines 31-34 (“Using . . . plants”)

28

As used in line 28, “broader” most nearly means more

- A) extensive.
- B) obvious.
- C) tolerant.
- D) spacious.

29

As used in line 48, “worked” most nearly means

- A) changed.
- B) influenced.
- C) functioned.
- D) manipulated.

30

According to figure 1, the percent reflectance of the flower petal of the *Monotropsis odorata* plants for light at a wavelength of 600 nanometers was approximately

- A) 5 percent.
- B) 10 percent.
- C) 20 percent.
- D) 30 percent.

31

Which statement about reflectance patterns in *Monotropsis odorata* is best supported by the data presented in figure 1?

- A) The flower petal reflectance pattern tracks closely with the bract reflectance pattern.
- B) The leaf litter reflectance pattern shows decreases in relation to increases in the flower petal reflectance pattern.
- C) The reproductive stem reflectance pattern is most similar to the leaf litter reflectance pattern.
- D) The bract reflectance pattern differs substantially from the reproductive stem reflectance pattern.

32

According to figure 2, the mean proportion of floral stems with herbivore damage per plant for *Monotropsis odorata* plants with intact bracts in 2007 was about

- A) 0.09.
- B) 0.17.
- C) 0.36.
- D) 0.40.

SAT Evidence Based Writing:

I recommend this site to review the most frequently tested grammar rules:

<http://thecollegepanda.com/sat-writing-guide/> Study these rules, master them, and then drill them and you'll see your Writing score improve because the same grammar rules are tested over and over again.

Structure

The SAT Writing Test is made up of **4 passages and 44 multiple choice questions**. You will have 35 minutes to read the passages and answer the questions in this section.

Content Covered on the Writing and Language Test

A good amount of questions involve the building blocks of writing: sentence structure, usage, and punctuation. You'll be asked to change words, correct clauses and sentences, and determine if it's appropriate to keep or delete content. Other topics covered include verb tense, parallel construction, subject-verb agreement, redundancies and pronoun agreement.

Every Breath You Take: One of the most effective test-taking strategies is to ALWAYS read the sentences under your breath. Simply scanning it with your eyes is not enough. Your brain possesses a built-in error detector, and when you quietly **sub-vocalize**, you'll have a better chance of detecting clumsy constructions and incorrect usage.



Theiyr're

Take that, grammar police!

Practice – This is the section that is the most predictable in terms of content. If you didn't do as well as you'd like on previous tests, your investment in time and effort here is sure to pay off. I'm not saying it will be the most exciting process, but if all you do is master the five types of punctuation tested, you're guaranteed to see your score go up.

SAT Writing Test Topics

1. Subject /Verb Agreement: A verb must agree in number (singular vs. plural) with the noun to which it belongs. Put a box around the Subject and cross out the prepositional phrases/comma phrases/relative clauses and then check for agreement.

Ex #1 -All my albums, except the one I let you borrow, (were/was) lost in the move.

Ex #2 -Inside the VIP lounge (sit/sits) Lil' Flip and his crew.

2. Noun/Pronoun Agreement: A pronoun must refer to a particular noun in the sentence and must agree in number and type with that noun. Look for "it"/"his or her" or "they/them" and see if they're misused. Again -singular noun needs a singular pronoun/plural noun needs a plural.

Wrong: Even if a customer gets there early, they aren't guaranteed to get the sneakers.

Correct: Even if a customer gets there early, he or she isn't guaranteed to get the sneakers.

3. Parallel Structure: In parallel constructions, you're looking for 'sentence symmetry', where the phrases or words must be in the same form. Items linked by a conjunction such as "and" must all have the same grammatical structure.

Wrong: I love to watch horror movies, take naps, and eating spicy foods.

Correct: I love to watch horror movies, take naps, and eat spicy foods.

4. Misplaced Modifiers: A sentence that begins with a noun phrase or introductory phrase must modify the noun that follows the comma, not a noun later in the sentence.

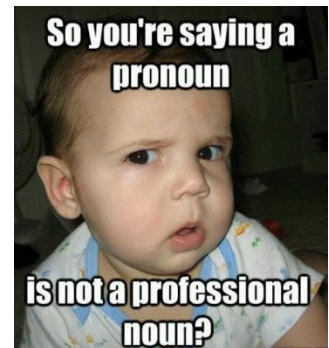
Wrong: Watching from the front row, the actors looked nervous to me.

Correct: Watching from the front row, I thought the actors looked nervous.

5. Verb Tense: Every verb in a sentence must be conjugated in the same tense unless it's purposely referring to different time frames. These are pretty easy to spot, especially when you sub-vocalize. Another tip is to look at the tense the other verbs in the passage/sentence.

Wrong: Every time you walk away, you took a piece of me with you.

Correct: Every time you walk away, you take a piece of me with you.



The past, the present,
and the future
walked into a bar.
It was tense.

6. Word Choice: One of the most commonly tested concepts is choosing the most appropriate word in context. For these questions, substitute in the answer choices and choose the clearest, simplest answer. **AVOID** wordy, fancy, slang, and vague choices.

7. Redundancies: These questions involve removing words that repeat or useless words/phrases that add nothing to the sentence.

#1. He was a liar who never told the truth.

#2. Buying candy at 7-11 is cheaper than buying candy at the movies which is more expensive.

8. Commonly Confused Words:

accept vs. except / affect vs. effect /
allusion vs. illusion/ ascent vs. assent /
complement vs. compliment /advice vs. advise /
council vs. counsel/ elicit vs. illicit /
eminent vs. imminent / than vs. then /allude vs. elude



Rhetoric-Based questions – The Big Three

1. Relevance/Purpose- aka “Should the Writer...” questions look like the following:

Which choice provides the most relevant detail?

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

The writer is considering deleting the underlined sentence. Should the sentence be kept or deleted? Should the writer make this addition here?

The key to getting these correct is to always pick the answer that fits best in context and has NO EXTRA or IRRELEVANT information. The answers are in YES/YES/NO/NO order, so smart test-taking means eliminating two right away and then picking apart the wrong answer.

2. Sentence Placement – When you're asked where to add a sentence or where to rearrange a sentence, **the most important thing** is to read the sentences before and after the options. These “bookend” sentences will give you language and context clue you need put the sentence in its most logical spot.

3. Transitions - Transitions express how two sentences or paragraphs relate to one another. If you understand the context and the author's meaning/direction, pick the transition word that conveys that meaning. Again, **ALWAYS** read the sentence before and the sentence after the one in question.

- Common transition words/phrases include However, Furthermore, In fact, Consequently, Moreover, Meanwhile, In addition.

Punctuation Review for the SAT and ACT Writing Section

There are only a few basic punctuation rules covered on both the SAT and ACT. Practice & Master how and when each of these are used and your score will take off.

1. Commas
2. Semicolons
3. Colons
4. Dashes
5. Apostrophes

COMMAS

When should you use a comma??

1. Before a Coordinating Conjunction to join two full sentences/independent clauses.

- To remember Coordinating Conjunctions use the acronym **FANBOYS: For, And, Nor, But, Or, Yet, So**

Example: That Apple Watch is pretty cool, but the price will drop by next year.

2. Between a dependent and an independent clause. Dependent clauses cannot stand on their own. They're not complete sentences; they **DEPEND** on another part.

- *Dependent clauses often start with words such as **Although, After, Because, Since** and other **Subordinating conjunctions**.*

Example : *Because I was extremely thirsty, I chugged an entire bottle of water.*

Example: *Although solid progress has been made, there is still quite a bit of work to do.*

3. To separate non-essential words or phrases. In other words, a part of a sentence that can be removed without disrupting the logical flow or meaning.

Example: *The Walking Dead, which I still watch, is a pretty depressing show.*

Example: *Many of his books start slowly. They do, however, get better if you keep reading.*

- **Commas act just like dashes in these cases. A common error on the SAT is when a phrase is offset with a comma on one end and a dash on the other.**

Example: *Tomorrow morning – which I'm not looking forward to, is supposed to be freezing. **This is 'asymmetrical' punctuation'! Be sure to fix it!***

4. Use one after introductory words and phrases

Examples: *Finally, our test scores came back. On the other hand, maybe that's not the best thing. Unfortunately, he never made another album.*

5. Use them to offset names and titles when used restrictively.

Ex: Richard Linklater's first movie, Slacker, was shot for less than thirty thousand dollars.

6. Use them to separate items in a list. And don't sweat the Oxford Comma (the comma before "and")

Example: *I plan on reading, relaxing, and napping over winter break.*

DO NOT USE COMMAS -

1. Between two full sentences/Independent Clauses

- When two stand-alone sentences are joined by a comma, it's a **Comma Splice!** This is probably the comma error that you can expect to see the most.

Example: *I was extremely thirsty, I chugged an entire bottle of water. = Comma Splice*

- A go-to technique to see whether a comma is being used correctly is to read the sentence under your breath and EXAGGERATE THE PAUSE. If it's in the wrong spot you'll hear it.

2. Between Subjects and Verbs

Compare: *Matt and I, are going to Burger King. vs. Matt and I are going to Burger King.*

3. With Compound Subjects and Compound Objects

Compare: *Matt, and I shouldn't have hit up Burger King. vs. Matt and I shouldn't have hit up Burger King*

- Beware and Avoid Punctuation Combinations! A comma before or after a parenthesis is NEVER correct. You also shouldn't see it combined with a dash or a colon.

Example: *The Twilight Zone is one of my all-time favorite shows (which tells you a lot about me), but even I will admit many of the stories aren't as frightening as they once might have been.*

- DO NOT invite that comma to the party. It is unwelcome.

SEMICOLONS

A Semicolon is basically a Period that joins two linked independent clauses. One is interchangeable with the other. There are two occasions when Semicolons are used:

1. Between independent clauses without a conjunction

Example: *I was extremely thirsty; it made sense to chug water.*

2. Before However and Therefore when they are used to begin a clause.

Example: *The Blueprint is a strong album; however, it's a bit too long for me.*

Example: *Nobody expected that performance; therefore, it is still talked about.*

COLONS

Colons are used before a list and before an explanation. The key thing to remember is that **a colon MUST ALWAYS follow a full sentence that can stand alone.**

Correct: *There is one horror movie I watch every winter: The Shining*

Incorrect: *I love: horror movies*

DASHES

A dash acts like a comma when it indicates non-essential parts within a sentence

Example: *Julia Roberts – a terrible actress – couldn't pull off an accent to save her life.*

A dash acts like a colon when it comes before a list or an explanation

Example: *There are two things I can't stand – littering and bad manners.*

APOSTROPHES

Apostrophes make nouns possessive. For singular nouns, add an apostrophe + an s

Example: *The man's phone = The phone belonging to the man*

Example: *My neighbor's lawn = The lawn belonging to my neighbor*

APOSTROPHES (continued) For plural nouns, always add -s + apostrophe

Example: *The birds' migration route = The route that multiple birds take.*

Example: *The classes' opinions = The opinions given by the class*

It's vs. Its

It's = It is Its = Possessive form of it

Its' = This is not legit. Don't ever pick it.

Examples: *It's* been snowing all day. That robot has lost **its** mind.

You're vs. Your

You're = You are Your = Possessive form of you

They're vs. Their vs. There

They're = They are Their = Possessive form of they There = A Place

Who's vs. Whose

Who's = Who is Whose addresses possession = Whose high tops are these?

Who vs. Whom

Basic rule of thumb is to use "who" when referring to a subject and "whom" when referring to an object.

“Who” Example: *Brett was the guy who was running to catch the bus.*

- In this example "who" is correct because it refers to the person performing the action. Brett is the subject. He's doing the running.

“Whom” Example: *I don't know whom to ask for the password.*

- In this example, "whom" is correct because it is the object of the verb "ask."

ALWAYS use "whom" after a preposition (because "whom" is the object of that preposition).

Example: *To whom am I to send this pajama-gram?*

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.

Out of Many, One Experience

On June 20, 1965, murmurs of excitement filled a Kingston, Jamaica, auditorium, where **1** way more people than were expected gathered for commencement

1

Which choice helps establish the tone and style of the passage?

- A) NO CHANGE
- B) an unusually large crowd
- C) a whole bunch of unexpected people
- D) an enormous crowd of an unparalleled nature

services at the University of the West Indies. **2** Along with the 400 graduates, many people had come to hear the words of that year’s commencement speaker, the Reverend Dr. Martin Luther King Jr. **3** Furthermore, the Jamaican audience was familiar with Dr. King’s ongoing campaign for civil rights in the United States through newspaper reports and television broadcasts, and the effect of seeing Dr. King ascend to the podium just feet away from where they stood was thrilling. The day’s **4** preceding not only inspired the audience but also furthered Dr. King’s aim of enhancing solidarity between the two countries.

2

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

The university was established by royal charter in 1948.

Should the writer make this addition here?

- A) Yes, because it provides necessary historical context that sets up the passage’s narrative.
- B) Yes, because it clarifies that commencement ceremonies were relatively new at the University of the West Indies.
- C) No, because it needlessly interrupts the discussion of Dr. King’s visit with an irrelevant detail.
- D) No, because it merely repeats information about the University of the West Indies that is given elsewhere in the passage.

3

- A) NO CHANGE
- B) As a result,
- C) By contrast,
- D) DELETE the underlined portion, adjusting the capitalization as needed.

4

- A) NO CHANGE
- B) precedents
- C) proceedings
- D) procedures

Without even consulting **5** notes, Dr. King began to speak passionately about challenges common to Jamaica and the United States. At the time, both countries were on the cusp of great change. Jamaica, **6** which would have achieved independence from Great Britain less than three years earlier, was in the process of forming a **7** government. For both countries, the quest for political and social rights was laden with setbacks. Fixing his gaze on the graduating seniors, Dr. King declared that the present generation must recognize that “no nation can live alone: we are all interdependent.” He emphasized the need for a spirit of love and worldwide brotherhood **8** from facing the challenges of the future. For Dr. King, Jamaica’s newly minted national motto—“Out of Many, One People”—perfectly encapsulated this precept of unity.

5

- A) NO CHANGE
- B) notes;
- C) notes—
- D) notes.

6

- A) NO CHANGE
- B) which achieves
- C) which will have achieved
- D) having achieved

7

The writer is considering revising the underlined portion to the following.

government; the United States, meanwhile, was on the path to expanding civil rights for its citizens.

Should the writer make this revision?

- A) Yes, because it explains why the audience felt a strong connection to Dr. King’s words.
- B) Yes, because it provides support for the claim made in the previous sentence.
- C) No, because it does not follow logically from the first part of the sentence.
- D) No, because it interrupts the paragraph’s focus on Jamaican independence.

8

- A) NO CHANGE
- B) for the facing of
- C) in facing
- D) through facing

9 Dr. King spoke about unity that day. He also inspired unity. Years later, when asked by reporters what they remembered most, many audience members cited the same moment in the speech. They all recalled that Dr. King had said, “If it falls to our luck to be street-sweepers, sweep the streets like Raphael painted pictures, like Michelangelo carved marble. . . . Sweep the streets so well that all the hosts of heaven and earth would have to pause and say, ‘Here lived a great street sweeper.’” For **10** people, building a new nation, these words were particularly meaningful. Everyone’s efforts had great worth; everyone had an important role to play.

The experience had a profound effect not only on **11** historians but also on Dr. King, who returned to Jamaica two years later when he needed a place to write his next book. In that work, *Where Do We Go from Here: Chaos or Community?*, Dr. King envisions a world in which all people are united, a world in which the communal spirit he found in Jamaica has been embraced by all nations.

9

Which choice most effectively combines the underlined sentences?

- A) Dr. King spoke about unity by inspiring it that day.
- B) Though speaking about unity that day, Dr. King actually inspired it.
- C) Speaking about unity, however, Dr. King also inspired it.
- D) Dr. King did not just speak about unity that day: he inspired it.

10

- A) NO CHANGE
- B) people building
- C) people building,
- D) people; building

11

Which choice provides the best transition from the discussion in the previous paragraph?

- A) NO CHANGE
- B) reporters
- C) the audience
- D) those who spoke with him

Questions 12-22 are based on the following passage.

The Theater Duke

When Georg II—duke of a small German principality called **12** Saxe-Meiningen established—a local theater in 1866, he oversaw every aspect of each production. **13** This high degree of involvement was unusual: while many principalities had court theaters, a duke would usually appoint a director to oversee the plays. Georg not only supervised the plays but also exercised full artistic control over them. Directors at the time exerted little creative influence, giving actors free rein and reusing generic stage sets. In contrast, Georg advised actors, designed elaborate sets, and choreographed scenes, contributing to the development of greater stage realism and ultimately helping to establish the role of the modern director.

14 Georg had recruited several little-known actors when the theater company visited Berlin to perform Shakespeare’s *Julius Caesar*, captivating the metropolitan audience. When the curtain rose at 7 p.m. on May 1, 1874, the audience was immediately amazed by the

15 productions’ elaborate sets and costumes, which Georg had modeled after Roman originals. Columns and

12

- A) NO CHANGE
- B) Saxe-Meiningen—established
- C) Saxe-Meiningen, established
- D) Saxe-Meiningen established

13

Which choice most effectively sets up the information that follows in the sentence?

- A) NO CHANGE
- B) Georg had been interested in the arts from a young age:
- C) At the time, Saxe-Meiningen was not a major cultural center:
- D) The duke maintained one of the best orchestras in Europe as well as an opera company:

14

Which choice provides the best transition from the previous paragraph?

- A) NO CHANGE
- B) It was the beginning of May
- C) Georg had to implement many staging changes
- D) Georg’s work as a director was on full display

15

- A) NO CHANGE
- B) productions elaborate sets
- C) production’s elaborate sets’
- D) production’s elaborate sets

decorative sculptures occupied the foreground of the **16** stage. As audience members marveled at the authentic-looking scenery, actors portraying Roman citizens streamed onto the stage, each bedecked in distinctive clothing, footwear, and **17** with headdresses. A trumpet then signaled the entrance of **18** Caesar. His glittering toga and armor made him instantly distinguishable. The audience members were so delighted that they broke into applause before a word was even uttered. “I could have believed myself back in ancient Rome,” one audience member said afterward.

16

The writer is considering revising the underlined portion to the following.

stage, while a backdrop painted with images of columns and fig trees provided the optical illusion of depth.

Should the writer make this revision?

- A) Yes, because it supports the claim in the previous sentence that the sets were modeled on Roman originals.
- B) Yes, because it further illustrates the spectacle that impressed audience members.
- C) No, because it unnecessarily repeats information about the columns already mentioned in the sentence.
- D) No, because it fails to provide a sufficient amount of detail about the backdrop.

17

- A) NO CHANGE
- B) wearing headdresses.
- C) in headdresses.
- D) headdresses.

18

Which choice most effectively combines the sentences at the underlined portion?

- A) Caesar: it was his glittering toga and armor that made him instantly distinguishable.
- B) Caesar being instantly distinguishable because of his glittering toga and armor.
- C) Caesar, who was instantly distinguishable by his glittering toga and armor.
- D) Caesar; instantly, his glittering toga and armor became distinguishable.

19 The venue Georg's company used was quite different from those used in Shakespeare's time. For example, he set the stage for the climactic murder of Caesar by arranging the crowd of conspiring Romans in a circle surrounding Caesar, thereby suggesting the inescapability of the ruler's fate. He also carefully orchestrated the chaotic moments following the murder, when the crowd spins out of control. Georg split the crowd into smaller 20 units, he assigned individual dialogue and stage positions, thereby making the scene more realistic.

19

- Which choice provides the best introduction to the paragraph?
- A) NO CHANGE
 - B) Some audience members were less enthusiastic about the new style.
 - C) Georg choreographed the play's action with equal intricacy.
 - D) The play emphasizes Caesar's influence over the Roman people.

20

- A) NO CHANGE
- B) units, assigning
- C) units; assigning
- D) units, and assigning

“One feels oneself present at the beginnings of a revolution,” a theater critic **21** wondered of this climactic scene; the same can perhaps be said of Georg’s achievement overall. The play was a hit, launching the duke’s group on a seventeen-year tour, during which it delivered over 2,000 performances in venues throughout Europe. Inspiring directors around the continent to design and execute more unified, detailed productions, **22** the title Georg was dubbed with was “The Theater Duke.”

21

- A) NO CHANGE
- B) presumed
- C) sensed
- D) observed

22

- A) NO CHANGE
- B) Georg’s posthumous title was “The Theater Duke.”
- C) “The Theater Duke” was a title posthumously given to Georg.
- D) Georg was posthumously dubbed “The Theater Duke.”

Questions 23-33 are based on the following passage and supplementary material.

Free to Sing

For centuries Japanese bird enthusiasts have bred white-rumped munias, brown finches with tufts of white feathers, for **23** its plumage. Generations of this selective breeding have produced a new species: the Bengalese **24** finch; while existing only in captivity. Such breeding was intended to produce certain physical qualities in the domesticated finches, but it also had an unintended **25** consequence increased song complexity in the Bengalese finch **26** relative to that of the white-rumped munia.

23

- A) NO CHANGE
- B) one's
- C) their
- D) his or her

24

- A) NO CHANGE
- B) finch, which exists
- C) finch, it exists
- D) finch; existing

25

- A) NO CHANGE
- B) consequence: increased
- C) consequence; increased
- D) consequence. Increased

26

- A) NO CHANGE
- B) when compared with those of
- C) when compared with
- D) relative to

To explain this phenomenon, Tokyo ornithologist Kazuo Okanoya at first reasoned that finch song complexity was driven primarily by mate selection. He found that **27** female finches tend to choose males with loud, high-pitched, improvisational songs. These males are chosen over those with soft, low-pitched, predictable songs, so breeders selecting reproductively successful birds must also have selected the most dynamic singers. However, Berkeley anthropologist Terrence Deacon saw a contradiction in this idea: song complexity should occur when there is pressure to identify a mate of the same species; **28** after all, it should not occur among birds in captivity, where this pressure is lower. Deacon proposed instead that since white-rumped munias in more homogeneous groups lack pressure to find other white-rumped munias, random genetic mutations that result in song improvisation are allowed to propagate, leading to more complex songs.

To test this hypothesis, Okanoya's team tracked wild white-rumped munias in three areas in Taiwan. At each site, they **29** diagnosed flock composition (the percentage of observed flocks that were "mixed," containing white-rumped munias and another species, scaly-breasted munias) and measured the linearity of the munias' songs (a calculation based on the number of elements in a song, where 1 is simple and 0 is complex).

27

Which choice most effectively combines the sentences at the underlined portion?

- A) female finches tend to choose males with loud, high-pitched, improvisational songs over those with soft, low-pitched, predictable songs,
- B) males with loud, high-pitched, improvisational songs tend to be ones chosen by female finches over those with soft, low-pitched, predictable songs,
- C) loud, high-pitched, improvisational songs are sung by males that female finches tend to choose over those with soft, low-pitched, predictable songs,
- D) choosing males with loud, high-pitched, improvisational songs over those with soft, low-pitched, predictable songs is what female finches tend to do,

28

- A) NO CHANGE
- B) instead,
- C) therefore,
- D) similarly,

29

- A) NO CHANGE
- B) dissected
- C) traced
- D) analyzed

The linearity at the mountainous site was **30** more than 0.1 point lower than that at the urban site or the agricultural site, indicating greater song complexity. At the same time, **31** a lower percentage of flocks at the urban site were mixed than at the mountainous site. Together, these data suggest that higher song complexity is associated with greater flock uniformity.

Figure 1

Munia Song Linearity
in Three Areas in Taiwan

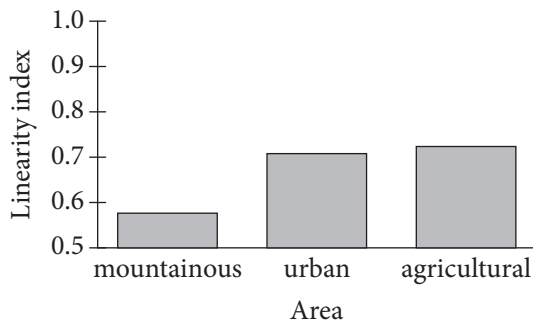
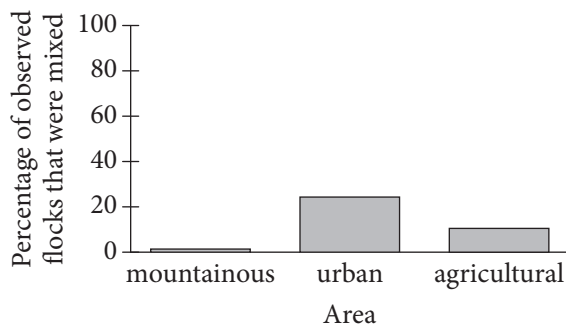


Figure 2

Percentage of Observed Flocks that
Were Mixed in Three Areas in Taiwan



Figures adapted from Hiroko Kagawa et al., "Ecological Correlates of Song Complexity in White-Rumped Munias: The Implication of Relaxation of Selection as a Cause for Signal Variation in Birdsong." ©2012 by John Benjamins Publishing Company.

30

Which choice best reflects the information presented in figure 1?

- A) NO CHANGE
- B) more than 0.2 point lower than that at the urban site or
- C) about the same as that at the urban site and
- D) exactly 0.7 point higher than that at the urban site and

31

Which choice best reflects the data presented in figure 2?

- A) NO CHANGE
- B) a greater percentage of flocks at the urban and agricultural sites were mixed than at
- C) over 40 percent of flocks were mixed at both the urban site and
- D) the percentage of flocks that were mixed grew slightly over time at

Okanoya’s study **32** indicates that, song complexity is subject to the pressure of the birds’ need to identify a mate of the same species; when this pressure is relaxed, song complexity increases rather than decreases. Such relaxation explains song complexity in the white-rumped munia’s descendant, the domesticated Bengalese finch, and **33** provides intriguing support for the idea that birdsong can evolve through a complex interaction of selective pressures.

32

- A) NO CHANGE
- B) indicates that—
- C) indicates, that
- D) indicates that

33

The writer wants a conclusion that places the passage’s discussion within a larger scientific context. Which choice best accomplishes this goal?

- A) NO CHANGE
- B) suggests that white-rumped munias and other birds do not have to be domesticated to develop complex songs.
- C) proves that habitat has more to do with birdsong complexity than does any specific mating pressure.
- D) indicates that white-rumped munias have more complex songs than do other kinds of birds.

SAT Math – There's a **25 minute Non-Calculator section** with 15 multiple choice problems & 5 Grid-Ins, followed by a **55 minute Calculator** section with 30 multiple choice problems and 8 Grid-Ins.

Content Areas Tested

Heart of Algebra -close to half (!) the questions will test your understanding/mastery of linear equations (equations where x is a constant or the product of a constant), inequalities, functions and graphs. You'll be asked to interpret variables in equations and real world "situations."

Problem Solving and Data Analysis -You'll be asked to demonstrate your ability to solve real-world problems by analyzing data from graphs, charts and tables using ratios, percentages, probability and proportional reasoning. Other concepts tested include mean, median, mode and range and how studies are set up and conducted.

Passport to Advanced Math -features questions that require manipulation of complex equations and understanding the structure of expressions and analyzing those expressions. The questions have to do with nonlinear expressions (expressions in which a variable is raised to an exponent that's not zero or one) These questions will ask you to work with quadratic equations, exponential expressions, parabolics and word problems.

Additional Topics in Math, -includes geometry, complex number s, trigonometry problems. About 5% of the test, so brush up on these concepts but do it in a targeted way.

Good to Know (Non-Calculator Section) –You're not allowed a calculator because you should be able to solve these questions without one - So practice your Mental Math! Practice "Hands Behind Your Back Math!" But whatever you do – PRACTICE!

Some of the skills required to answer these no calculator questions include:



- Simple math (addition, subtraction, multiplication, division)*
- Simplifying single equations or phrases (using the FOIL method)*
- Solving a system of two equations*
- Knowing square roots*
- Being familiar with powers (and how to reconfigure powers).*

Good to Know (Calculator Section) – This section goes heavy on the

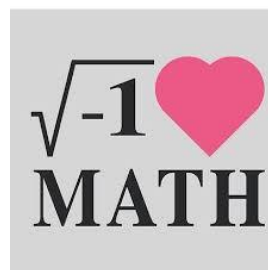


Data/Stats questions and a good number of these require no calculator at all. You'll be interpreting data using charts, graphs and tables. There will be word problems where you'll have to apply your reasoning and critical thinking skills to analyze real world situations, create mathematical models, and find relevant solutions.

SAT Math- Common Concepts

($E=mc^2$) Excellence = MASTERY (COMMON CONCEPTS)

Nearly two thirds of the math content is algebra-based, so it's a wise investment to focus the majority of your preparation time on these be these key **Heart of Algebra** concepts:



Working with Algebraic Expressions

Translating word problems into expression, equations, or inequalities

Solving systems of linear equations or inequalities with one or two variables.

Interpreting linear expressions, equations or inequalities in “real world” contexts.

Understand how a linear graph relates to an equation or system of equations.

Over a third of the Calculator Section is made up of **Data Analysis and Problem Solving** Questions. You'll definitely see questions relating to each of these concepts:

Ratios, rates, percentages, probabilities and proportions.

Working with line of best fit and scatterplots.

The difference between linear and exponential growth.

Understanding mean, median, mode, range of data, and standard deviation.

For many students, the going gets rough on the last handful of questions in both the Non-Calculator and Calculator sections. This is where you'll find the **Passport to Advanced Math** content. Mastering the other two content areas will almost guarantee you a Math score in the 600s, but if you're aiming higher, you'll have to understand and be able to work with these concepts:

Quadratic Equations – solving them, working with them, interpreting them.

Polynomial Expressions – adding, subtracting, multiplying, and dividing them.

Working with and simplifying expressions with radicals and exponents.

Functions and their graphs – interpreting operations and translating graphs.

Understanding graphs of Polynomial & Parabolas, interpreting equations, finding zeros.

Less than approximately 8% of any Math section is **Additional Topics in Math** content. If the prospect of trigonometry or complex number questions is frightening, it shouldn't be. Here's what you'll see:

Geometry problems –circle questions, similar triangles, converting degrees and radians.

Trigonometry Content – Right triangle/SOHCAHTOA or Trigonometric Identity questions.

Parallel lines cut by a transversal problems.

Complex numbers – knowing how to solve operations involving them.

SAT Math - Strategies & Approaches

There is 'Math' and then there is 'SAT Math'. There will be questions that are like nothing you've seen in school. Concepts are tested in weird and unfamiliar ways. Think about preparing for the Math section as learning another language. Take a bunch of practice sections and familiarize yourself with the way the questions are asked. Track your mistakes. Brush up on any specific content weaknesses. Again, let the test teach you how to take it.

SAT Math is all about thought processes –simplifying your thinking and solving the question with insight, flexibility and ingenuity rather than with brute force and multiple calculations. Try to maintain a consistent approach when you attack a problem.

Approach Math Questions you're unsure about by asking these 3 questions –

#1- What CONCEPT is being tested? Is it a parabola problem? Slope? Equivalent Expression? Identifying the concept will call forward key data to your working memory and hopefully nudge you in the right direction

#2 – What are they GIVING ME and HOW DO I USE IT? Can you substitute? Are there real numbers in the answers? Is there a formula? At the very least, play with the numbers in the question. Don't give up –Do Something!

#3 – What is the BEST STRATEGY TO ATTACK IT? –Can you plug-in? Draw a diagram? Use Answer Symmetry and Process of Elimination to get it down to two answers and make an educated guess.

Remember -The most proven and effective way to improve any standardized test score is to be relentless when it comes to understanding WHY you missed a question. The more you practice, the more you'll get to know yourself as a standardized test-taker and understand what types of questions give you the most trouble and what types of mistakes you make most often.



Luckily, **Khan Academy** has partnered with the **College Board** to create an absolutely fantastic learning tool to assist your preparation.

How to use Khan Academy to Improve Your Performance on the Math Sections (as well as the other ones while you're at it!)



1 –Go to the **Khan Academy** website and create an account.

2 -Link your PSAT and/or SAT scores to Khan. Here's a You Tube video showing you how to do that:

<https://www.youtube.com/watch?v=AlveV0131Cw&feature=youtu.be>
Khan Academy will use your PSAT/SAT scores to give you personalized study recommendations for the SAT.

3 - If you haven't taken the PSAT yet or don't have your scores, just take the diagnostic quizzes. They're short and once you're done Khan will assess your performance and build you a study plan based on your skill level with recommended practice questions and video tutorials based on the subjects you need to practice the most.

4- The video tutorials will help sharpen your skills and the level of difficulty increases as you get stronger. You also have the option to work on other specific skill areas if you don't want to focus on content that Khan is suggesting.

5 – After you've worked through some of your weaknesses, a Solid-Gold Strategy is to take an entire timed practice test, grade it, and track your mistakes. If you're missing a good number of polynomial or function questions, then search out the videos that explain those concepts and problem solving approaches in detail. Understanding WHY you missed is a question and then drilling that weakness is the absolute guaranteed way to raise your score on any standardized test.

- There are now 6 official full length practice tests available, each with answer sheets and answer explanations:

<https://collegereadiness.collegeboard.org/sat/practice/full-length-practice-tests>

Once you've taken a test, use the **Scan and Score** feature to get instant feedback and question-by-question results from your phone. Just open the free app, **Daily Practice for the New SAT**, and snap a picture of your answer sheet.

<https://collegereadiness.collegeboard.org/sat/practice/daily-practice-app>



These resources really create a No-Excuse Zone when it comes to preparing for the SAT. If you want the very best score you're capable of, put in the work and remember -

“Proper Preparation Prevents Poor Performance”

SAT Math – Formulas/Identities/Concepts You Need To Know

The vertex form of a quadratic function is given by $y = a(x - h)^2 + k$, where (h, k) is the vertex of the parabola.

- To convert a quadratic from $y = ax^2 + bx + c = 0$ form to vertex form, $y = a(x - h)^2 + k$, you use the process of completing the square.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The Quadratic Formula: The sign of the discriminant can be used to find the number of solutions of the corresponding quadratic equation : $ax^2 + bx + c = 0$

If the **discriminant** $b^2 - 4ac$ is **negative**, then there are **no real solutions** of the equation .

If the **discriminant** is **zero**, there is **only one solution**.

If the **discriminant** is **positive**, then the \pm symbol means you get **two solutions**

- The solutions of this equation correspond to the **x-intercepts of the parabola**

Every **Difference of Squares** problem can be factored as follows: $a^2 - b^2 = (a + b)(a - b)$ or $(a - b)(a + b)$. So, all you need to do to factor these types of problems is to determine what numbers squares will produce the desired results.

Circles: Circles are defined by the formula when (h,k) is the center and r is the radius.

$$(x - h)^2 + (y - k)^2 = r^2$$

Sin x = Cos (90-x) : Know the relationship between the sine of an angle and the cosine of its complementary angle, which is the angle that completes to 90° .

CONCEPTS

Concept #1: when an upward projectile reaches its highest point, its velocity is zero and when an upward projectile lands, its height is zero.

Concept #2 : the sides of similar triangles all have the same respective proportions.

Concept #3: in a system of linear equations, there is no solution if the slopes of the two lines are parallel.

Concept #4: to find the intersections of two lines, set them equal to one another.

Concept #5: Clearing Equations of Fractions -When equations have a lot of fractions in them, clear all the fractions by multiplying every term by the LCD (least common denominator).

Polynomial Remainder Theorem: So the value of the polynomial $p(x)$ at $x = a$ is the same as the remainder you get when you divide that polynomial $p(x)$ by $x - a$.

Pythagorean Triplets: Memorize these and save valuable time. Both the ACT and the SAT are obsessed with these triplets – 3:4:5 , 6:8:10 and 5:12:13



Math Test – No Calculator

25 MINUTES, 20 QUESTIONS

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

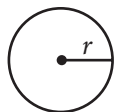
DIRECTIONS

For questions 1-15, solve each problem, choose the best answer from the choices provided, and fill in the corresponding bubble 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

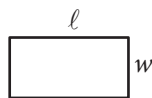
- The use of a calculator **is not permitted**.
- All variables and expressions used represent real numbers unless otherwise indicated.
- Figures provided in this test are drawn to scale unless otherwise indicated.
- All figures lie in a plane unless otherwise indicated.
- Unless otherwise indicated,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

REFERENCE

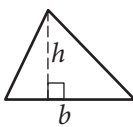


$$A = \pi r^2$$

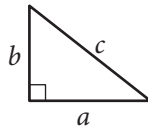
$$C = 2\pi r$$



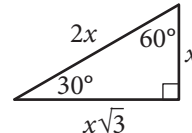
$$A = \ell w$$



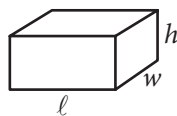
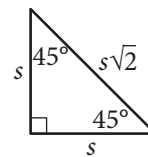
$$A = \frac{1}{2}bh$$



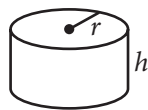
$$c^2 = a^2 + b^2$$



Special Right Triangles



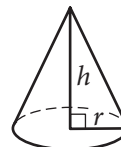
$$V = \ell wh$$



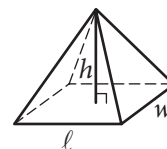
$$V = \pi r^2 h$$



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



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



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

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

Juliet rented a car for one day from a company that charges \$80 per day plus \$0.15 per mile driven. If she was charged a total of \$98 for the rental and mileage, for how many miles of driving was Juliet charged? (Assume there is no tax.)

- A) 15
- B) 120
- C) 533
- D) 633

2

$$(2x + 6) + (x^2 + 2x + 1)$$

Which of the following polynomials is equivalent to the expression above?

- A) $x^2 + 5$
- B) $x^2 + 7$
- C) $4x^2 + 7$
- D) $x^2 + 4x + 7$

3

$$f(x) = 2(x - 1) + 2$$

For the function f defined above, what is the value of $f(1)$?

- A) 3
- B) 2
- C) 0
- D) -1

4

Which of the following is an equation of the line in the xy -plane that has slope 2 and passes through the point $(0, 3)$?

- A) $y = 2x + 3$
- B) $y = 2x - 3$
- C) $y = 2(x + 3)$
- D) $y = 2(x - 3)$

5

$$\sqrt{x} + 4 = 12$$

Which of the following is the solution to the equation above?

- A) 8
- B) 16
- C) 64
- D) 140



6

If $7(2x - 5) - 2(2x - 5) = 4(x + 5)$, what is the value of x ?

- A) 1
- B) $\frac{15}{2}$
- C) $\frac{65}{6}$
- D) 65

7

$$x^4 - 8x^2 + 16$$

Which of the following is equivalent to the expression above?

- A) $(x - 2)^2(x + 2)^2$
- B) $(x^2 + 4)(x + 2)(x - 2)$
- C) $(x - 2)^4$
- D) $(x - 4)^4$

8

$$V = \frac{M}{D}$$

The formula above relates volume V , mass M , and density D . What is density in terms of volume and mass?

- A) $D = \frac{1}{MV}$
- B) $D = \frac{M}{V}$
- C) $D = \frac{V}{M}$
- D) $D = MV$

9

For a ride, a taxi driver charges an initial fare of \$3.00 plus \$0.40 for each $\frac{1}{5}$ of a mile driven. If the total charge for a ride is \$27.00, what is the distance traveled, in miles?

- A) 3
- B) 8
- C) 12
- D) 15



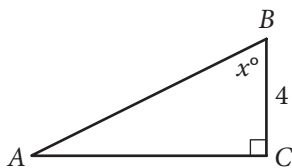
10

$$\frac{1}{2}mv^2 = mgh$$

Torricelli's law is given by the equation above, where m represents the mass, h represents the height, v represents the velocity, and g is a constant. According to the equation from Torricelli's law, which of the following is equivalent to the velocity, v ?

- A) $2gh$
- B) $\frac{1}{2}ghm^2$
- C) $\sqrt{2gh}$
- D) $\sqrt{\frac{1}{2}mgh}$

11



Note: Figure not drawn to scale.

In the right triangle above, $x = 60$. What is the length of side \overline{AB} ?

- A) 7
- B) 8
- C) 9
- D) It cannot be determined from the information given.

12

$$4v^2 + 6v + 1 = 0$$

Which of the following values is a solution to the equation above?

- A) $\frac{-3 + \sqrt{5}}{4}$
- B) $\frac{-3 + \sqrt{13}}{4}$
- C) $\frac{3 + \sqrt{5}}{4}$
- D) $\frac{3 + \sqrt{13}}{4}$

13

$$C(t) = 50.25t + 228.75$$

The average cost per square foot, in dollars, of a condominium in City X can be modeled by the function C defined above, where t is the number of years after 2001 and $0 \leq t \leq 8$. In the function, what does the number 50.25 represent?

- A) The average cost per square foot, in dollars, of a condominium in 2001
- B) The average cost per square foot, in dollars, of a condominium in 2009
- C) The approximate increase in years for each dollar increase in the average cost per square foot of a condominium
- D) The approximate increase in the average cost per square foot, in dollars, of a condominium for each additional year after 2001



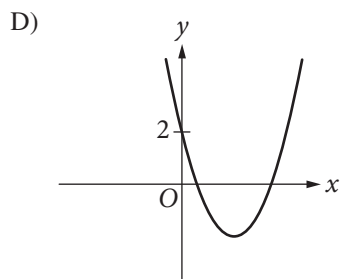
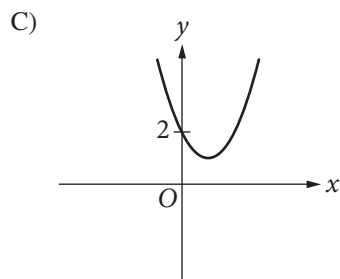
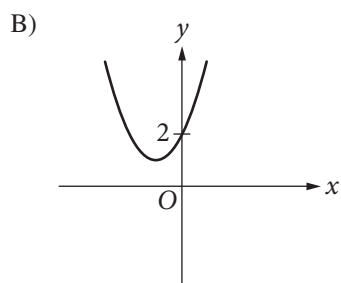
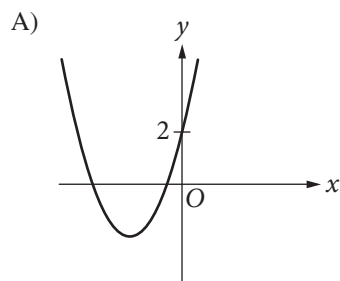
14

What is the sum of the complex numbers $6 + 5i$ and $8 + 3i^2$? (Note: $i = \sqrt{-1}$)

- A) $11 + 5i$
- B) $14 - 2i$
- C) $14 + 8i^3$
- D) $17 + 5i$

15

Which of the following could be the graph of $y = x^2 + 2x + 2$?





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 bubbles accurately. You will receive credit only if the bubbles are filled in correctly.
- Mark no more than one bubble 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

3	1	/	2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 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: $\frac{7}{12}$

Write answer in boxes. →

7	/	1	2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
<input checked="" type="radio"/>	7	7	7
8	8	8	8
9	9	9	9

Grid in result. ←

Answer: 2.5

	2	.	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	<input checked="" type="radio"/>
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

← Fraction line

← Decimal point

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

	2	/	3
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1
2	2	2	2
3	3	3	<input checked="" type="radio"/>
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8

.	6	6	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
7	7	7	7
8	8	8	8

.	6	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	<input checked="" type="radio"/>
8	8	8	8

Answer: 201 – either position is correct

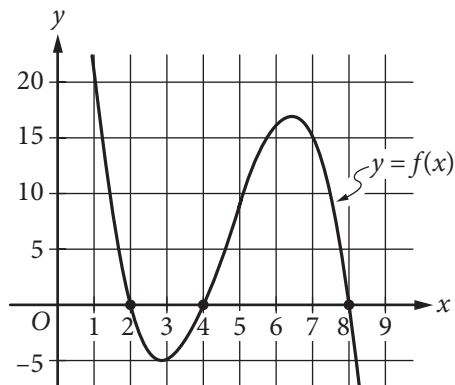
	2	0	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	<input checked="" type="radio"/>
2	2	2	2
3	3	3	3

2	0	1	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	<input checked="" type="radio"/>	1
2	2	2	2
3	3	3	3

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



16



The graph of the cubic function f is shown in the xy -plane above. If $f(a) = 0$, where a is a constant, what is one possible value of a ?

17

$$5(x + a) + 3(x^2 - a) = 3x^2 + 5x + 4$$

In the equation above, a is a constant. If the equation is true for all values of x , what is the value of a ?

18

$$3m + 2p = 24$$

$$m + p = 10$$

If (m_1, p_1) is the solution to the system of equations above, what is the value of p_1 ?

19

$$4x - 5y = 2$$

The graph of the equation above in the xy -plane is a line. What is the x -coordinate of the x -intercept of the line?

20

$$(x - 6)^2 + (y - 3)^2 = 25$$

The graph in the xy -plane of the equation above is a circle. If the circle is translated downward a units such that the circle is tangent to the x -axis, the equation becomes $(x - 6)^2 + (y - 3 + a)^2 = 25$. What is the value of a ?

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.

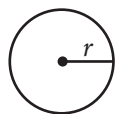
DIRECTIONS

For questions 1-30, solve each problem, choose the best answer from the choices provided, and fill in the corresponding bubble 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

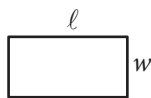
- The use of a calculator **is permitted**.
- All variables and expressions used represent real numbers unless otherwise indicated.
- Figures provided in this test are drawn to scale unless otherwise indicated.
- All figures lie in a plane unless otherwise indicated.
- Unless otherwise indicated, the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

REFERENCE

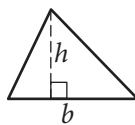


$$A = \pi r^2$$

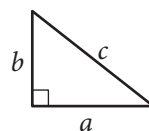
$$C = 2\pi r$$



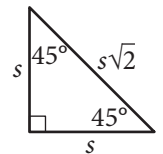
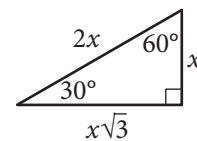
$$A = \ell w$$



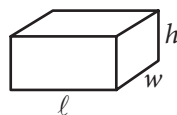
$$A = \frac{1}{2}bh$$



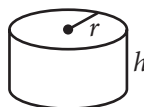
$$c^2 = a^2 + b^2$$



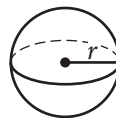
Special Right Triangles



$$V = \ell wh$$



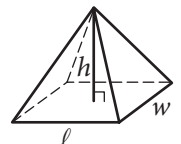
$$V = \pi r^2 h$$



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



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



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

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.



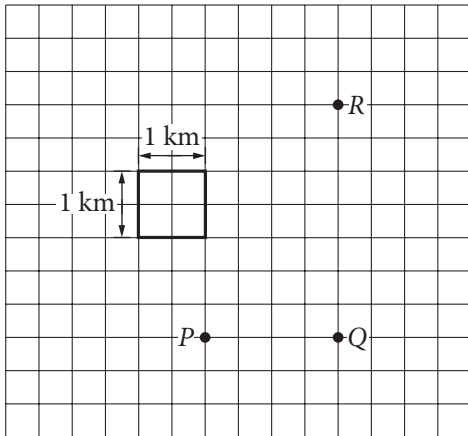
1

$$5(x - 3) = 10x + 5$$

What value of x satisfies the equation above?

- A) -4
- B) 1
- C) 5
- D) 15

2



A student walks x kilometers (km) along a straight path from point P to point Q . Then the student walks y km along a straight path from point Q to point R . What is the total distance, $x + y$, in km, that the student walks?

- A) 2.0
- B) 3.5
- C) 5.5
- D) 8.0

3

If $y = x + \frac{1}{2}$ and $z = 2x - 3$, which of the following is equivalent to $y + yz$?

- A) $2x^2 - x - 1$
- B) $2x^2 - x - 2$
- C) $2x^2 - x - \frac{1}{2}$
- D) $2x^2 - 2x - \frac{3}{2}$

4

An electric company charges Jerome \$0.05 per kilowatt-hour (kWh) of energy he uses in his house. If Jerome was charged \$36 by the electric company, how many kilowatt-hours of energy did Jerome use?

- A) 0.0014
- B) 1.8
- C) 180
- D) 720



5

A scientist conducted an experiment and selected a random sample of runners from a list of all high school track participants from a certain city. The scientist randomly assigned each runner to one of two treatment groups, and the results of the experiment were found to be statistically significant. To which of the following populations can the results of the experiment be safely generalized?

- A) All high school athletes
- B) All high school track participants from the city
- C) All high school track participants from the country
- D) All runners

6

Which of the following equivalent forms of the function $f(x) = 4x^2 + 4x - 24$ is the most suitable to indicate the x -coordinates of the x -intercepts of the graph of $y = f(x)$ in the xy -plane?

- A) $f(x) = 4(x^2 + x - 6)$
- B) $f(x) = 4(x - 2)(x + 3)$
- C) $f(x) = 2(x - 2)(2x + 6)$
- D) $f(x) = (2x - 4)(2x + 6)$

7

Raymond's weekly income consists of a base salary for a 40-hour workweek plus overtime pay. The overtime pay is paid at an hourly rate for the time that Raymond works in addition to his 40-hour workweek. Raymond's weekly income, in dollars, can be represented by the expression $800 + 30x$, where x is the total number of hours Raymond works over 40 hours. Which of the following is the best interpretation of the number 800 in this context?

- A) Raymond's base weekly salary, in dollars
- B) Raymond's total overtime pay for the workweek, in dollars
- C) The total number of hours in a year that Raymond works in addition to his normal 40-hour workweeks
- D) Raymond's hourly wage, in dollars per hour, for time worked in addition to his normal 40-hour workweek

8

A city with 120,000 residents is voting on a proposal that would eliminate overnight parking of vehicles on the city's streets. An independent company randomly surveys 1,200 residents to see whether or not residents would support this proposal. The outcome of the survey shows that 60% of the residents surveyed approve of the proposal with a margin of error of 2%. Which of the following statements is a plausible conclusion from the outcome of the survey?

- A) Exactly 60% of city residents approve eliminating overnight parking.
- B) There are 72,000 city residents who approve eliminating overnight parking.
- C) About 2% of the city residents do not approve eliminating overnight parking.
- D) Between 58% and 62% of the city residents approve eliminating overnight parking.



9

On November 1st, there were 2,500 boxes in a warehouse. On December 1st, there were 15% fewer boxes in the warehouse than there were on November 1st. On January 1st, there were 20% more boxes in the warehouse than there were on December 1st. How many boxes were in the warehouse on January 1st?

- A) 1,700
- B) 2,125
- C) 2,550
- D) 2,625

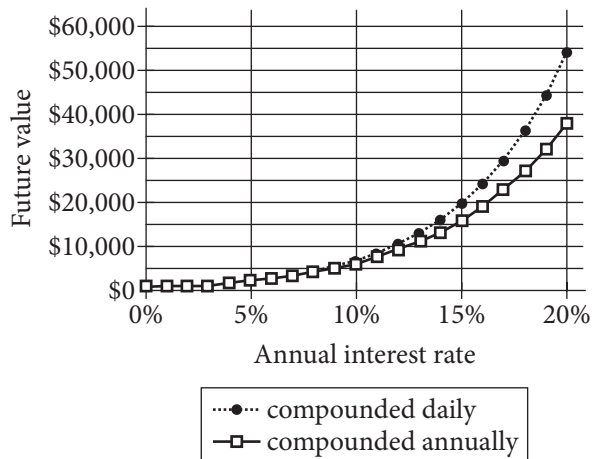
10

Jonathan needs to earn at least \$175 next week and can work at most 20 hours. He earns \$10 per hour at his lawn service job and \$8 per hour at his job at the gym. Which of the following systems of inequalities represents this situation in terms of the number of hours he will work at his lawn service job, ℓ , and the number of hours he will work at his job at the gym, g , next week?

- A) $10\ell + 8g \leq 175$
 $\ell + g \leq 20$
- B) $10\ell + 8g \leq 175$
 $\ell + g \geq 20$
- C) $10\ell + 8g \geq 175$
 $\ell + g \leq 20$
- D) $10\ell + 8g \geq 20$
 $\ell + g \geq 175$

11

Future Value of an Investment after 20 Years for Different Interest Rates



An initial investment of \$1,000 is made at a constant annual interest rate. The graphs above show the corresponding future value v , in dollars, of the investment for different annual interest rates, r , after 20 years. One graph shows the value when the interest is compounded daily, and the other graph shows the value when the interest is compounded annually. Which of the following statements is true?

- A) As r increases at a constant rate, v increases more rapidly if interest is compounded annually rather than daily.
- B) As r increases at a constant rate, v increases more rapidly if interest is compounded daily rather than annually.
- C) As r increases at a constant rate, the difference in interest compounded daily and interest compounded annually increases at a constant rate.
- D) If $r = 15\%$ and interest is compounded annually, a \$1,000 investment will be worth \$20,000 after 20 years.



Questions 12-14 refer to the following information.

For gym class, Shayla completed a 4-mile walking and running exercise. She ran for $7t$ miles and she walked for

$3\left(\frac{13}{15} - t\right)$ miles, where t is the total amount of time,

in hours, Shayla spent running. The equation

$7t + 3\left(\frac{13}{15} - t\right) = 4$ models this situation.

12

Which of the following is the best interpretation of the value 7 in the equation that models this situation?

- A) Shayla walked at a speed of 7 miles per hour.
- B) Shayla ran at a speed of 7 miles per hour.
- C) Shayla walked for 7 minutes.
- D) Shayla ran for 7 minutes.

13

What is the value of t in the equation that models this situation?

- A) $\frac{7}{50}$
- B) $\frac{7}{20}$
- C) $\frac{31}{60}$
- D) $\frac{13}{15}$

14

What was the total distance that Shayla spent walking and running, in kilometers?
(Use 1 mile = 1.61 kilometers)

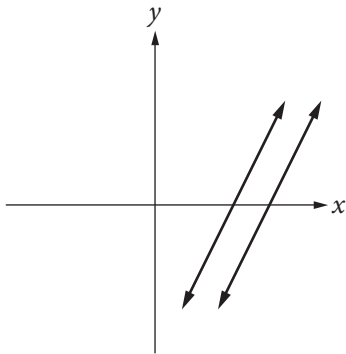
- A) 0.40
- B) 4.00
- C) 6.44
- D) 10.53



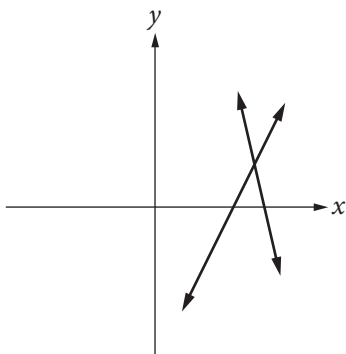
15

Which of the following is a graph of a system of equations with no solution?

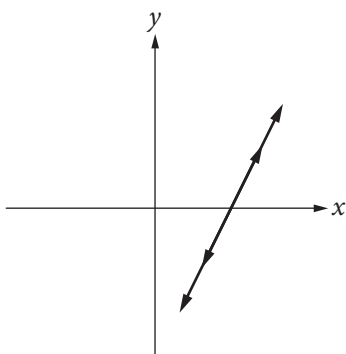
A)



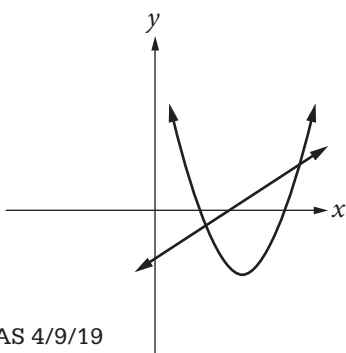
B)



C)



D)



16

$$P = P_0 + \rho gh$$

The equation above gives the total pressure, P , on an object submerged in a fluid, where P_0 is the pressure at the fluid's surface, ρ is the density of the fluid, g is the acceleration due to gravity, and h is the depth to which the object is submerged. What is h in terms of P , P_0 , ρ , and g ?

A) $\frac{\rho g}{P - P_0}$

B) $\frac{P - P_0}{\rho g}$

C) $\frac{P + P_0}{\rho g}$

D) $P + P_0 + \rho g$

17

If $4x^2 + bx + 9 = 0$, where b is a constant, has exactly one solution, what is a possible value of b ?

A) 72

B) 36

C) 12

D) 6



18

	Female	Male	Total
Blue eyes	2	4	6
Brown eyes	8	6	14
Green eyes	1	5	6
Total	11	15	26

Sierra recorded the gender and eye color of all the students in her biology class. The results are shown in the table above. If a male student is selected at random from Sierra's biology class, what is the probability that he will have brown eyes?

- A) $\frac{2}{3}$
 B) $\frac{2}{5}$
 C) $\frac{3}{7}$
 D) $\frac{3}{13}$

19

Kelly enlarged the area of a photograph to 250% of its original size. The original dimensions of the photograph were 5 inches by 7 inches. What is the area of the enlarged photograph, in square inches?

- A) 71.25
 B) 87.5
 C) 218.75
 D) 3,000

20

$$\sqrt{x-3} = 3 - \sqrt{x}$$

If x is the solution to the equation above, what is the value of $\sqrt{x-3}$?

- A) 1
 B) $\sqrt{\frac{3}{2}}$
 C) $\sqrt{3}$
 D) 3



31

Anna was 99 centimeters tall the day she turned 3 years old, and she was 106.5 centimeters tall the day she turned 4 years old. If Anna's height increases by the same amount each year between the ages of 2 and 8, how many centimeters tall will she be the day she turns 7 years old?

32

Cars Registered in Town X

Car color	Percent of registered cars
Black	13%
Blue	7%
Gray	7%
Silver	28%
White	32%
Other	13%

The table above shows the distribution of color for the 4000 cars registered in Town X. Based on the table, how many more white cars than black cars are registered in Town X?

33

$$3x + 2y = 16$$

$$6x + 2y = 28$$

If the system of equations above has solution (x, y) , what is the value of $x + y$?

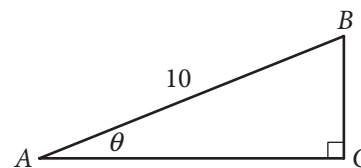
34

Monthly Enrollments in Art Classes

Community center	Jan	Feb	Mar	Apr	May	Jun	Jul
A	124	111	98	82	77	152	133
B	465	407	391	354	365	511	495

The table above shows monthly enrollments in art classes at two community centers for 7 consecutive months. Based on the table, by how much does the median monthly enrollment in community center B exceed the median monthly enrollment in community center A for the 7 months?

35



In the right triangle above, $\sin \theta = \frac{2}{5}$. If $AC = \sqrt{n}$, what is the value of n ?

36

In the xy -plane, the graph of $y = x^2 + bx + c$, where b and c are constants, has x -intercepts at $x = -2$ and $x = -6$. What is the value of b ?

The Essay

The essay is OPTIONAL, but I recommend writing it. Your essay score will NOT enter into your final numerical score for the SAT; instead, it will be reported separately.

What You Need To Know

You get 50 minutes to write it. The prompt asks you to read and analyze a provided passage. The prompt itself is nearly the same on every exam—it is the passage that varies from test to test.

The SAT essay is evaluated based on three specific criteria: Reading, Analysis, and Writing. Each of these criteria will be scored on a scale of 2-8 yielding a total score range of 6-24.

Here's a breakdown of what the College Board expects to see in your essay:

Reading: The College Board wants to see evidence in your essay that you read and understood the passage. There is a very simple way to demonstrate this: quote the passage. The best way to prove that you understood all the nuances of the passages is to use pieces of it effectively in your essay.

Analysis: Analyze the elements of someone else's argument and use this analysis to craft an argument of your own. They're testing your ability to recognize evidence used by the author to persuade readers toward a certain point of view. Does the speaker use statistics, surveys, or research? Interviews with experts? Next, why is this type of evidence used, and is it persuasive? What is the logical connection between the evidence and the argument? Does it have gaps or flaws? What evidence might better support the position? Come up with interesting, supportable claims and selecting strong, relevant evidence to support them.

Writing: The College Board wants to see evidence that you can not only come up with a good analysis, but that you can also effectively convey it to your reader. The scorers are evaluating your ability to come up with a coherent organization, use varied sentence structures, and employ good word choice and tone.

Remember – You're NOT taking a stand on the argument put forth by the author of the passage. It's not an opinion essay.

After reading the prompt, make an outline for the essay and jot down critical pieces of evidence and pertinent details. An outline will help organize all of the parts of an essay and make note of important points to include in your piece, as well as help you to refocus if you lose your train of thought during the test.

The SAT Essay - A Review of Rhetorical Skills: Persuading an Audience Using Logos, Pathos and Ethos

There are three types of rhetorical strategies used by speakers to compose a convincing argument.

Logos (rational appeal): Appeal to the audience's logical reasoning ability. Examples of logos include facts, statistics and anecdotes.

Pathos (emotional appeal): Appeal to an audience's heart and emotions. An author or speaker using pathos seeks to persuade someone emotionally using personal connections, stories or testimonials, and maybe spirituality. Pathos can aim to evoke hopes and fears and often employs figurative language.

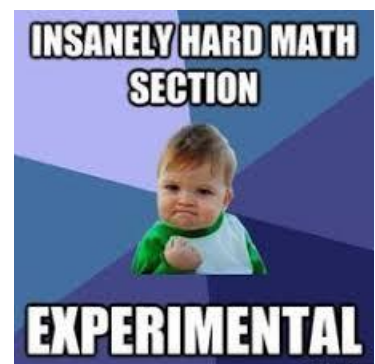
Ethos (ethical appeal): Appeal to the credibility and authority of a speaker. Using ethos, a writer can convey trustworthiness through tone and style as well as by establishing her credentials in a field. An author's reputation can also influence pathos.

Keep those 'buzzwords' in mind, but the most commonsense and effective way to go about writing the essay is to study a high-scoring example, understand why it received the score it did and then 'model' your essay format after that. It's rubric-based scoring, so you just feed the beast what it wants.

Here's a link to an example: <https://www.khanacademy.org/test-prep/sat/new-sat-tips-planning/about-the-sat-essay/a/sat-essay-high-scoring-student-example>

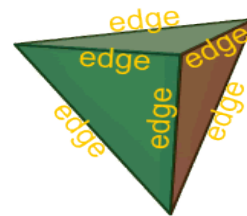
There are even more to be found on Khan Academy.

One last thing – Another reason to stay on and write the essay is that if you don't you may be given a 20 minute 'Experimental Section'. This extra section could be from any one of the content areas. The College Board has never been clear about whether this section counts or not, but the consensus SEEMS to be that it doesn't. That being said, you should still try your best, stay focused, stay committed and play to the final whistle.



EVERY LITTLE EDGE

Preparation is separation - There is no substitute for completing as many timed, full-length Practice Tests as possible. The more you expose yourself to the various ways content is tested while demonstrating the ability to finish sections within the time allotted, the higher the probability that you will reach or exceed your target score. Once you've put in the Practice, consider these test-day tips to give you even more of an edge!



Essentials – First things first, right? The night before, put your Admission Ticket, Photo ID, Number #2 pencils and calculator in a safe spot.

Rinse and Repeat – You want there to be as much carry-over from the setting you're (successfully) taking your practice tests in to the day of the actual test. I advise bringing the same pencil/pencils, same snack/water bottle, and wearing the same clothes. If you crushed your last practice test wearing sweats and a hoodie, that's what you should be wearing to the test.

“Decluttering” - Researchers have found that having students write about their test-taking thoughts and worries for 5-10 minutes prior to the start of the exam “canceled out the negative effects of test anxiety.” The researchers believe that putting the worries on paper helped clear the working memory of stressful clutter that would disrupt cognitive functions.

Minty Fresh - Providing students with peppermints on test days has been shown to improve focus and result in higher scores. It is thought that they both provide glucose for the brain that can enhance memory and that their scent somehow increases student attention.



Stay Focused and On Point - When you feel your focus/attention wavering, find a focal point in the room –not another person –take a few deep, centering breaths and “redefine your mission”. The test writers set multiple traps throughout the test designed to take advantage of mental fatigue. It's totally natural that your mind wants to rush through reading the problem to get to the part where you figure it out. Once you've figured out how to solve it, it's also natural that your mind wants to rush the calculation part in order to get to the next question. But when you're rushing, you're not paying full attention to each step as you're doing it. And when you lose your focus, you're much more likely to make a mistake.

40 Winks – Get a consistent sleep schedule down by at least Wednesday on the week of the test. Ideally you'll want to get 8 hours, which means hitting the hay around 10:30am if you plan to wake up at 6:30am the morning of the SAT. Your body and mind will be in sync and you'll find that you're refreshed and firing on all cylinders. The SAT is a grind and you want to be as alert and focused as possible. Sleep is the key!



Make the Most of Your Minutes! – 3 things you can do to improve your score when the test is right around the corner.

Study Your Mistakes! Whether you're reviewing your PSAT, a full-length practice test or just a few practice sections, it's critical that you understand why an answer is correct and why you made the mistake. Was it a content issue, a careless mistake or timing? Make sure you understand the route to the correct answer and why your answer choice was incorrect. Even if you just do this for one section, you should start to see major score improvements.

Work Smarter, Not Harder – Spend time on the content areas that will deliver you the most points. Algebra makes up 65% of the Math sections, so go to Khan Academy and review Systems of Equations, Inequalities, and Linear Functions. There are only 5 types of punctuation tested. Master them and your score is guaranteed to go up.

Get Your Timing Down – If you can't do an entire test on paper – doing it on a screen isn't nearly as realistic – complete timed sections and set your internal clock. Don't wrestle with questions. You shouldn't be spending more than a minute on SAT Reading questions, more than 45 seconds on the Writing questions or more than a minute on each question in the Math sections. You should also practice using bubble sheets and filling in the Grid-In questions. Little things mean a lot.

The Night Before - Set your stuff out for Saturday: calculator, pencils, admission ticket. And then chill. The best thing you can do now is get some rest, so you can wake up ready to go. Read a book. Watch a movie. Go to bed early and Visualize Success – Picture yourself sitting at the desk and taking care of business calmly and confidently.

During the Test – The SAT is a grind. To succeed you need to be dialed-in the entire time!

Don't Freak Out- Perhaps easier said than done, but staying focused and maintaining a positive mindset even when things get tough is the key to doing your very best.

Skip the Hard Questions - By skipping the hardest questions, you'll be able to spend more time on the easier questions that you're more likely to get right. Try to eliminate answers that are obviously incorrect. This will allow you to narrow down the number of possible answers and makes the question seem more manageable.

Don't leave anything blank- Always guess. If you're running out of time try to find a question you feel good about. Cherry pick. If you have a bunch of bubbles left, make sure you fill them in and always be sure to pick the same letter!

