



**SAT<sup>®</sup>**  
**BOOT CAMP**  
*Better Scores in ONE Day*

Developed by the expert who earned perfect scores on the SAT<sup>®</sup> and ACT<sup>®</sup>

- ★ Improve time management and learn essential test-taking skills
- ★ Prepare for the most frequently tested questions
- ★ Reduce test-taking anxiety and improve confidence

Our Boot Camps have been proven as effective prep in the “final hours” before test day. In just one day, students will learn what they need to boost their scores by 50–100 points or more with zero class interruption!

## Why SAT Boot Camp?

---

- The only one-day workshop designed to help students meet SAT College and Career Readiness Benchmarks
- Very easy to schedule: you provide the space, and we take care of everything else.
- No attendance limits
- Students learn what they need to boost their scores by 50-100 points or more in just 6 hours.
- Students master time management and learn dozens of test-taking techniques and guessing strategies.



## What's Included?

---

- 6-hour workshop led by an expert, engaging instructor
- A workbook for each student with exercises to complete during the event and additional practice leading up to test day.
- SAT and PSAT versions available

## Students will learn:

---

- Pacing and time management
- Test-taking and guessing strategies for Writing and Language, Math, and Reading
- Tips for the most important question types

## Implementation Timeline

---

MasteryPrep’s SAT Boot Camp is test prep that fits your schedule. We’ve worked hard to develop practical, last-minute SAT prep for the “final hours” before test day.

- Full-day workshop during school hours
- After-school or Saturday programming

## Students love our SAT Boot Camp!

---

“The Boot Camp helps you prepare yourself for the SAT and is super helpful. They taught really useful test-taking strategies.”

“Super helpful and highly informative”

“[The presenter] was always super upbeat and made sure we were happy and understood what was going on.”

“This is really helpful and, and it will help me when I take my SAT. I would recommend this to all my friends.”

“It’s everything you want if you want to score high. I had a great time and would love to come again.”

“This Boot Camp will help improve your time management skills during a test.”

“It’s a fun way to study for the SAT.”

“I appreciate this program; it really changed my mindset on the test.”

“Excellent way to study for the PSAT.”

“This is my first time at such an event, and I loved it!”

“The teacher is knowledgeable, and the content is great.”

## And educators do too!

---

“I really am happy that we brought MasteryPrep to Sandburg for our students. I think our instructor was knowledgeable as well as engaging! It is very challenging to keep the attention of a room full of high school students for over 5 hours! However, she did an amazing job, and the students’ evaluations indicated that they learned a lot and were happy that they came.”

- *Stephanie Woodard, Upward Bound Director, Carl Sandburg College, IL*

“Our administration and counselor were very impressed. Facilitator was great!”

- *Sonya King, College Access Coordinator, John Marshall Harlan High School, IL*

“The students felt the strategies that were shared, especially in math, were extremely helpful.”

- *Alicia Williams Lovelace, College Access Coordinator, Morgan Park High School, IL*

“One of the best forums for students learning the SAT tips and strategies.”

- *Roland Doon, Teacher, Percy L. Julian High School, IL*



PRESENTS



**SAT<sup>®</sup>**  
**BOOT CAMP**

---

*Better Scores in ONE Day*

**Oliver Pope and Craig Gehring**  
with Allison Eskind and Lisa Primeaux-Redmond

» **Schedule**

Fill in the times following your instructor’s directions. This is the agenda we will follow throughout the day. We’ll have a break between each section. Next to each section name in the schedule, you’ll find the corresponding page number where it begins in this workbook.

<b>Time</b>	<b>Section</b>	<b>Page Number</b>
_____	SAT Overview	7
_____	Reading Test	15
_____	Writing and Language Test	81
_____	Break	-
_____	Math Test - No Calculator	143
_____	Math Test - Calculator	199
_____	Boot Camp Wrap-Up	271

## Chapter One: SAT Overview

---

⊛ SAT Boot Camp ⊛



### » What Do You Want to Do?

The SAT is the most important test you will take during high school, but with all the emphasis on prepping for the test, it is easy to lose sight of the reason *why* it is so important in the first place.

- **The SAT can get you into your dream school:** Nearly every college and university considers the SAT as one of the two most influential parts of your application. (Your high school GPA is the other.)
- **The SAT will help you pay for college:** The higher you score on the SAT, the more likely you are to receive scholarship and grant money that can be used to pay for up to 100% of all of your college tuition.

**What motivates you to go to college?**

**The SAT is not “just another test.”** Even if you feel burned out by all the tests you take, remember that a good score on the SAT can open the door to opportunities and pave the way for your goals. Keep your eye on the prize and keep studying.

## Chapter One: SAT Overview

★ SAT Boot Camp ★

### » Orientation

The SAT is a marathon of a test. Between Reading, Writing, the two Math sections, and the optional Essay, you will spend nearly 4 hours answering over 150 test items engineered to assess how ready you are for college.

Sequence	Subject	Test Items	Passages	Time
1	Reading Test	52	5	65 minutes
2	Writing and Language Test	44	4	35 minutes
Break				10 minutes
3	Math Test - No Calculator	20	-	25 minutes
Break				5 minutes
4	Math Test - Calculator	38	-	55 minutes
Break				5 minutes
5	Essay (Optional)	1	-	50 minutes

The **Reading Test** measures your ability to interpret and comprehend reading passages from both modern and historical sources.

The **Writing and Language Test** assesses your knowledge of grammar and punctuation as well as your mastery of rhetoric and composition.

The **Math Test - No Calculator** checks your ability to solve mathematical problems with a heavy emphasis on algebra. No calculators are allowed.

The **Math Test - Calculator** examines your ability to solve a greater variety of mathematical problems with an emphasis on comprehension. Calculators are allowed for this section.

The **Essay** evaluates your skill in analyzing a topic and forming a written response.



## » How the SAT Is Scored

In order to be mentally prepared for the SAT, you need to have a clear goal in mind.

What is your overall goal score for the SAT? \_\_\_\_\_

What is your goal for Math? \_\_\_\_\_

What is your goal for Evidence-Based Reading and Writing? \_\_\_\_\_

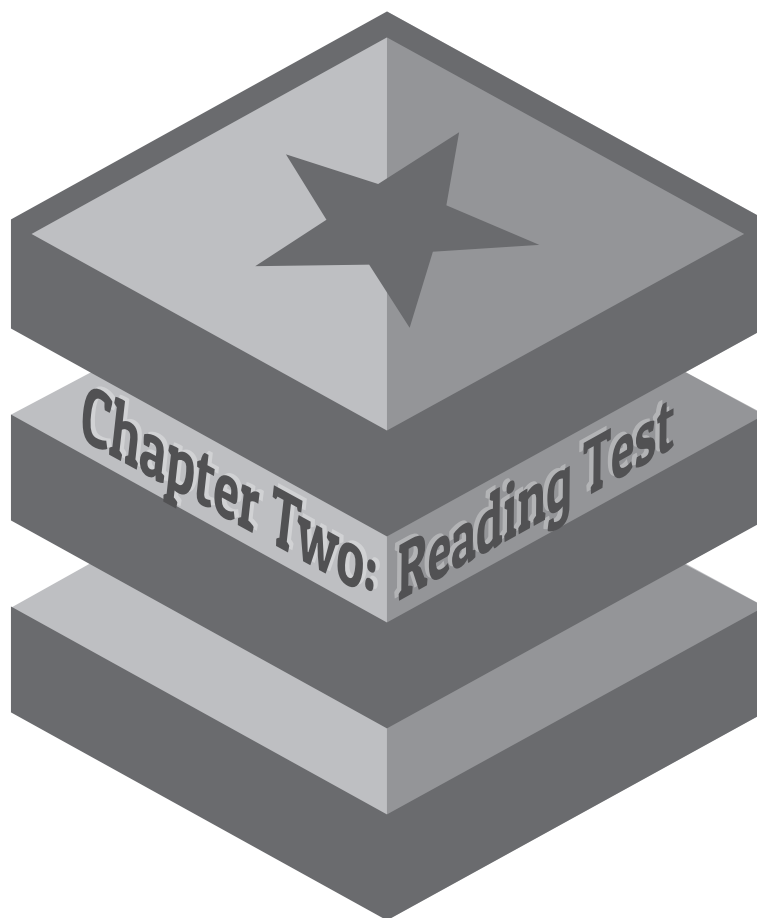
**SAT Conversion Table**

Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score	Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score
0	200	10	10	31	530	27	29
1	200	10	10	32	540	27	30
2	210	10	10	33	550	28	31
3	230	10	10	34	550	28	31
4	240	11	11	35	560	29	32
5	260	11	12	36	570	29	33
6	270	12	12	37	580	29	33
7	290	13	13	38	590	30	34
8	300	14	14	39	590	30	35
9	320	14	15	40	600	31	36
10	330	15	15	41	610	31	36
11	340	16	16	42	620	32	37
12	350	16	17	43	630	33	39
13	360	17	18	44	640	33	40
14	380	17	18	45	650	34	
15	390	18	19	46	660	35	
16	400	18	19	47	670	35	
17	410	19	20	48	680	36	
18	420	20	21	49	680	37	
19	430	20	22	50	690	37	
20	440	21	22	51	700	39	
21	450	21	23	52	720	40	
22	460	22	24	53	730		
23	470	23	24	54	740		
24	480	23	25	55	760		
25	490	24	25	56	770		
26	500	24	26	57	790		
27	510	25	27	58	800		
28	510	25	27				
29	520	26	28				
30	530	26	29				

## Chapter Two: Reading Test

---

⊛ SAT Boot Camp ⊛



### » An Introduction to the Reading Test

The Reading test of the Evidence-Based Reading and Writing test is a multiple-choice test designed to measure your ability to comprehend and analyze a variety of passages. The test consists of **52 test items** and **5 passages** to be completed in **65 minutes**. The questions on the Reading test come from three categories:

- **Information and Ideas:** These questions focus on interpreting and citing the information presented in the passage. They measure skills such as making inferences, citing evidence, and summarizing passage text.
- **Rhetoric:** These questions analyze the rhetoric in the passage, including author word choice, point of view, and purpose.
- **Synthesis:** These questions cover two very specific skills—the analysis of two texts in relation to each other and the interpretation of quantitative information, such as graphs, tables, and charts.

### » Paired Questions

Every Reading passage on the SAT will have one or two sets of **Paired Questions**. These questions work together, so it is important that you recognize them on the test and use an effective strategy.

- Use the **line references** from the second question to find **evidence** for the first question.
- Eliminate any choices from the second question that are **unrelated** to the first question.
- **Double-check** that your answers to both questions agree with each other before moving on.

Take a look at questions 16 and 17 from the mini-test.

16

Which of the following best describes Weller’s attitude toward “the part advanced technology plays” (lines 84-85)?

- A) She is concerned about the effect it has on older generations.
- B) She is unworried about its contribution to society.
- C) She is hopeful that it will increase reported optimism in rates that have not been recorded since the mid-century.
- D) She is unclear how it will impact the next generation.

17

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

- A) Lines 71-77 (“Weller . . . prior”)
- B) Lines 77-79 (“Even though . . . anxiety”)
- C) Lines 82-83 (“More . . . new”)
- D) Lines 94-97 (“If . . . future”)

Answer the question pair as a single unit, working them at the same time. Start by identifying the **keywords** from the first question and examining the **line references** from the answer choices in the second question.

**Keywords:** Weller’s attitude toward “the part advanced technology plays.”

**Choice A Line Reference:** Weller has done an elaborate analysis on historical surveys of various symptoms of anxiety in young people—noting, for instance, that even in the mid-century when the most commonplace technology was a radio, teenagers were more anxious and hyperactive than their parents were twenty-five years prior.

**Choice B Line Reference:** Even though smart technology has made more strides in recent years than several decades combined, “modern life itself creates anxiety.”

## » Quantitative Questions

Some passages will contain questions that refer to tables, charts, graphs, or other figures. These are called **Quantitative Questions** and should be answered immediately after you complete the reference questions.

For quantitative questions, let the keywords guide you to your **Evidence**.

- Some questions will only ask about the figure. In this case, just use the figure as your evidence.
- Some questions will require the figure **and** the passage. In this case, you'll consider both together when you select your answer.

Look at question 21 on the mini-test for an example:

21

Which additional information, if presented in figure 2, would be most useful in evaluating the statement in lines 59-63 ("Innovation . . . life")?

- A) The rate of life satisfaction as it compares across all three age groups in a single year
- B) The percentages of each age group that reported optimism from 1970 to 2015
- C) The geographic location from which rates of optimism and anxiety were reported
- D) The types of technologies that were predominantly used during each decade

This question refers to figure 2 as well as lines 59-63 in the passage. This means you will need to use both for your evidence.

**Passage Excerpt:** People are becoming less optimistic and more anxious as innovation progresses.

**Figure 2:** The average rates of reported anxiety across all demographics in the U.S. have risen as technology has become more responsive.

The missing link between figure 2 and the passage excerpt is *optimism*. Therefore, the correct answer should include optimism to see how it tracks against technology and anxiety.

Choices A and D have nothing to do with optimism, so they are both immediately incorrect. Between choices B and C, only choice B directly talks about anxiety across the different age groups, so it is the best choice.

⊛ SAT Boot Camp ⊛



Reading Test

# Mini-Test One

1

1

**Questions 11-21 are based on the following passage.**

This passage is adapted from Cecilia Fordham, “How Smartphones Are Ruining the Future.” ©2018 by MasteryPrep.

APA research scientists Michel Hjartdal and Samuel McIntire have theorized that innovative functions in smart devices—including predictive text and facial recognition software—are mainly responsible for the accelerated rates of reported anxiety in teens aged 11 to 19 years over the last ten years. Bearing more bad news for teenagers, they predict this heightened state will only continue into adulthood as this instantaneous, reactive software is pushed out not only in social media, gaming, and entertainment apps, but in such innocuous locations as the classroom, patient waiting rooms, and the grocery store.

That ever-responsive smart devices can lead to anxiety may seem indisputable to anyone who has parented a teenager or recently been one. But Hjartdal and McIntire’s theory is more compelling and provocative. They are convinced that the constant barrage of connectivity has depleted the self-esteem from today’s youth more than it has helped bridge relationships, increasing the rates of already high averages for anxiety and intensifying the need for dialogue on mental health. And, they reason, the beginnings of a similar trend can be detected in older but technologically savvy generations.

To support their claim, Hjartdal and McIntire share a graph that only a psychologist could dream up. In psychology, optimism—the belief that any given outcome in life will be positive—is a primary indicator of healthy coping strategies. It’s an indication of maturity. On the graph Hjartdal presents, distinct lines illustrate optimism and anxiety among teenagers for the last century. Ever since the Great Depression, those two lines have mainly been inverted, with increases in optimism corresponding to decreases in anxiety. The relationship is obvious: when teenagers generally felt positive about their life situation, that age demographic was notably less anxious, generated inclusivity, and even shook up stale institutions. Then, right around 2007, the trend flips; rates of anxiety steadily rise, and optimism drastically plummets. By 2015, the largest reversal in history between the two rates appears, depicting one of the most anxious and cynical generations of the last century.

Hjartdal and McIntire call it “ironic dysconnectivity.” And Hjartdal is assured that smart technology is responsible for both the uptick in anxiety and the downturn in optimism.

It’s an extraordinary claim because it questions society’s general consensus in support of responsive technology. Hjartdal and McIntire concede that smart devices create more connected and better-informed teenagers, but they also maintain that this comes at a high cost: responsive technology is removing the normal friction that develops mental fortitude and perseverance, paradoxically leaving youth with a less hopeful and more worried outlook. Hjartdal utilizes a second graph illustrating how rates of healthy perspectives are suffering a setback even as more experienced and mature generations use smart technology. “It’s a silent crisis in our society,” he says. “Innovation is progressing at a rapid pace, instant communication has tightened the global network, but simultaneously, people are less optimistic and people are much more anxious throughout their life. We are dissatisfied because the omnipresence of information and other lives better than our own are constantly being presented to us.”

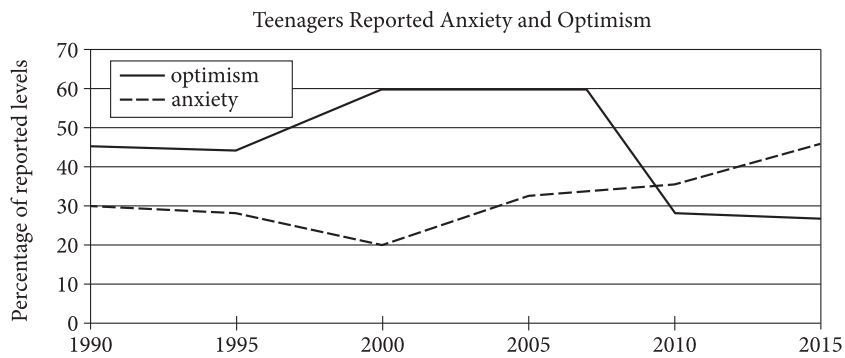
While smart devices can be especially taxing on a younger and malleable generation who don’t remember life before computers, Janice Weller, a psychologist at UCLA, says that no extensive studies demonstrate the use of technology correlating to an epidemic of anxiety among today’s youth. Weller has done an elaborate analysis on historical surveys of various symptoms of anxiety in young people—noting, for instance, that even in the mid-century when the most commonplace technology was a radio, teenagers were more anxious and hyperactive than their parents were twenty-five years prior. Even though smart technology has made more strides in recent years than several decades combined, she says “modern life itself creates anxiety. The world has been considered ‘fast-paced’ for over fifty years now. In general, this makes society worried over an unknown future. More convenience creates more dissatisfaction. More convenience leaves us looking for something new.”

Nevertheless, Weller doesn’t discount the part that advanced technology plays—especially in the newest generation entering the workforce. The mystery, she says, is knowing whether historic perceptions of life will set the verdict. Will smart technology empower the

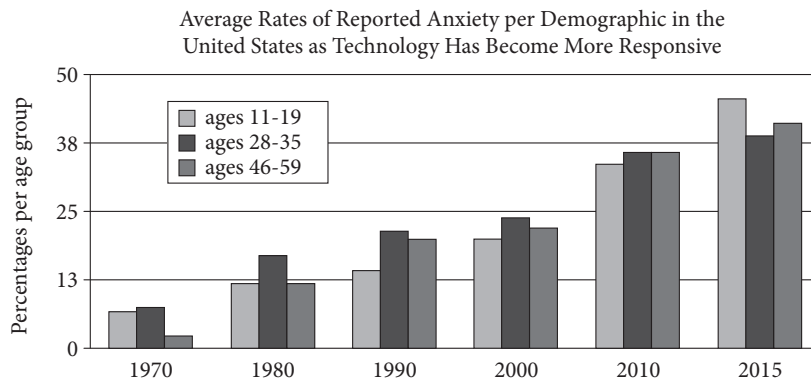
**1**

following generations as they grow up, or will we see  
 90 a counterproductive role in which the next generation  
 is unable to function without a computer automating  
 their steps for them? Although Weller sides with  
 historical precedent predicting a more stable trend, it  
 is “a potential future,” she admits. “If we continue to  
 95 incorporate smart technology into every aspect of our  
 lives, who can say what the end result will be on the  
 children of the future?”

**Figure 1**



**Figure 2**





## ★ Reading Test ★

1

1

11

The main purpose of the passage is to

- A) describe the increasing dependence on technology in teenagers' lives since 2007.
- B) evaluate the impact of smart technology on life satisfaction in teenagers.
- C) promote the use of responsive technology in a variety of circumstances.
- D) propose a solution about how technology can be used by today's youth.

12

Which choice best supports the claim that there is a significant connection between advancing smart technologies and reported rates of anxiety among adolescents?

- A) Lines 6-12 ("Bearing . . . store")
- B) Lines 38-40 ("Then . . . plummet")
- C) Lines 47-49 ("It's . . . technology")
- D) Lines 79-82 ("The world . . . dissatisfaction")

13

It can be reasonably inferred from the second paragraph (lines 13-24) that the observations of Hjartdal and McIntire show that

- A) older generations are more adversely affected by technology than younger generations.
- B) younger generations suffer more than older generations from anxiety due to technology use.
- C) younger generations are more likely to create innovative technology than older generations.
- D) all generations gain some amount of life satisfaction from smart technology.

14

The primary purpose of lines 27-28 ("the belief . . . positive") is to

- A) define a term.
- B) describe a system.
- C) illustrate a concern.
- D) clarify a statement.

15

As used in line 29, "maturity" most nearly means

- A) ripeness.
- B) perfection.
- C) fullness.
- D) wisdom.

16

Which of the following best describes Weller's attitude toward "the part advanced technology plays" (lines 84-85)?

- A) She is concerned about the effect it has on older generations.
- B) She is unworried about its contribution to society.
- C) She is hopeful that it will increase reported optimism in rates that have not been recorded since the mid-century.
- D) She is unclear how it will impact the next generation.

17

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

- A) Lines 71-77 ("Weller . . . prior")
- B) Lines 77-79 ("Even though . . . anxiety")
- C) Lines 82-83 ("More . . . new")
- D) Lines 94-97 ("If . . . future")

### » E4: How to Answer Reading Questions

When you answer a **Reference Question** or **Concept Question** on the Reading test, follow the **E4** method.

**Entrance:** Identify the keywords in the question as well as any line references to the passage. Turn the question into something you can do, such as finding the author's opinion on a topic or searching for a detail.

- **Reference Questions** will always contain a line reference, but **Concept Questions** will not. Concept questions will not have line references, so focus on the keywords.

**Evidence:** Use the line reference and keywords to find evidence for your answer.

- **Reference Questions** will always have direct evidence found in the passage.
- **Concept Questions** will rely on both your understanding of the passage as a whole and the answers to previous questions, although sometimes they are answered directly by the passage. Use any of these sources as your evidence.

**Elimination:** Eliminate answers that contradict your evidence.

- Cross off a **terrible choice** immediately.
- Put a **check** next to a good choice.
- Write a **question mark** next to a confusing choice, but do not eliminate it.
- If an answer is **perfect**, pick it and go.

**Exit:** Select the best choice from the remaining options. Mark the question according to your confidence in your answer:

- **Single star:** If you are unsure of your answer, put a single star next to the question.
- **Double star:** If you think the question is too time-consuming, mark it with a double star and save it for your second look.

## » Reading Closely

The most common question type on the SAT Reading test is **Reading Closely**. The key to doing well on these questions is to base your answer strictly on the passage.

- Look for words like *inferred* and *according to the passage* during the **Entrance** step.
- **Evidence** is especially important for this question type, so make sure you find it in the passage.
- Be prepared to **Eliminate** choices that are off-topic or twist the passage text.

Take a look at question 13 from the mini-test.

13

It can be reasonably inferred from the second paragraph (lines 13-24) that the observations of Hjartdal and McIntire show that

- A) older generations are more adversely affected by technology than younger generations.
- B) younger generations suffer more than older generations from anxiety due to technology use.
- C) younger generations are more likely to create innovative technology than older generations.
- D) all generations gain some amount of life satisfaction from smart technology.

The keyword in this question is the *observations of Hjartdal and McIntire* found in lines 13 to 24. Reread that part of the passage and find the main idea.

**Passage:** The passage text focuses on the anxiety that smart devices cause in teenagers.

Now, start eliminating **terrible** answers that don't fit with this evidence.

**Choice A:** *Adversely affected by technology* is on-topic, so **keep** it for now.

**Choice B:** *Anxiety due to technology use* is on-topic, so **keep** it for now.

**Choice C:** *Creating innovative technology* is off-topic, so **eliminate** it.

**Choice D:** *Life satisfaction* is off-topic, so **eliminate** it.

Finally, compare the remaining options to see which one is the best choice. According to the passage, older generations are only beginning to show adverse effects from technology use, which contradicts choice A. Only choice B reflects the passage text by saying that *younger generations suffer more* from anxiety than older generations, so it is the correct answer.

### » Word Choice

Some questions on the Reading test will ask you *why* the author used a word, phrase, or even a group of sentences. These are called **Word Choice** questions, and they require an alteration to your basic approach.

- Watch for “why” words such as *how*, *serves to*, and *uses the word or phrase* in the **Entrance** step.
- When you read the **Evidence** in the passage, focus on **why** in addition to **what**.
- Be prepared to **Eliminate** choices that are supported by the passage but don’t answer the question.

Consider question 30 in the mini-test to see how this works.

30

The author uses the phrase “a failsafe method” in line 85 most likely to

- A) demonstrate the confidence a scientist can have in an experiment.
- B) describe the process used to measure the percentage of imperfect fruits produced by the greenhouses.
- C) describe how a detailed experiment can avoid unnecessary mistakes.
- D) suggest that a certain environment has the most contributing factors to healthy produce growth.

This question has *uses the phrase*, so it is a word choice question. Start by reviewing the **what** in the passage.

**Passage:** The last paragraph summarizes the results of an experiment researching what method can best grow cucumbers during a Brazilian winter.

Eliminate any choices that don’t fit with the **what**. Choice B is unrelated to the research or commercial cucumbers in Brazil, so eliminate it.

Now determine the **why** of the phrase. Instead of thinking through the answer on your own, compare the answer choices to see what options are available to you.

Choose the option that best aligns to the passage. Ask yourself, was the author trying to highlight a *scientist’s confidence*, *how to avoid mistakes*, or *the environment best for growing produce*?

Based on the passage text, choice D best captures the most likely reason for **why** the author used the phrase *failsafe method*.

**» Purpose**

If the SAT asks you for the purpose or function of a paragraph or even the entire passage, you are dealing with a **Purpose** question. The secret to these questions is to *think bigger*.

- **Purpose** is a lot like **Word Choice** but on a larger scale. Instead of focusing on the **why** of words and phrases, you will focus on the **why** of paragraphs or even the entire passage as a whole.
- Use your **Active Skim** and your answers to the previous questions to find the correct answer. It is difficult to point to a specific line that gives you the purpose of an entire paragraph or passage.

Take a look at question 29 from the mini-test.

29

The primary function of the seventh and eighth paragraphs (lines 60-84) is to

- A) describe Ferreira and Bell's methods.
- B) summarize Ferreira and Bell's results.
- C) explain Ferreira and Bell's hypothesis.
- D) clarify Ferreira and Bell's reasoning.

This question asks you to find the *function* of two paragraphs in the essay, the seventh and eighth paragraphs. Start by determining the **what** of these paragraphs:

**Paragraph 7:** The researchers discovered several facts about the quality of produce in relation to the number of flowers and the environment.

**Paragraph 8:** The researchers discovered that temperature and lack of pollination negatively affect the production of the cucumbers.

Since the paragraphs are focused on the discoveries made by the researchers, you can eliminate any choices that focus on something other than their discoveries. Find the keyword in each choice to make quick eliminations:

**Choice A:** ...methods.

**Choice B:** ...results.

**Choice C:** ...hypothesis.

**Choice D:** ...reasoning.

Notice that all four of these concepts are covered in different parts of the passage. However, only *results* in choice B fits with the *discoveries* discussed in the seventh and eighth paragraphs.

### » Reading Test Wrap-Up

Use this page as a guide to review the Reading strategies covered in this chapter.

- **Pacing Gates:** Make sure you know exactly when you need to complete each passage.
  - **Passage 2**—12:12
  - **Passage 3**—12:24
  - **Passage 5**—12:36
  - **Passage 1**—12:48
  - **Passage 4**—1:00
- **Reading Procedure:** Review the basic approach to working a Reading passage.
  - **Active Skim:** Take up to 4 minutes to actively skim the passage.
  - **Reference Questions:** Take up to 4 minutes to answer all of the questions with direct line references.
  - **Concept Questions:** Take up to 2 minutes to answer all of the questions that do not have line references.
  - **Second Look and Cleanup:** Take up to 2 minutes to review any questions you marked for review.
- **E4:** Review the basic approach to Reading questions, specifically **Entrance, Evidence, Elimination, and Exit**.
- **Core Question Strategies:** Go over the core strategies covered in this book:
  - **Reading Closely**—Page 27
  - **Word Interpretation**—Page 29
  - **Paired Questions**—Page 31
  - **Quantitative Questions**—Page 34
  - **Word Choice**—Page 39
  - **Purpose**—Page 41
  - **Understanding Relationships**—Page 58
  - **Synthesis Questions**—Page 65

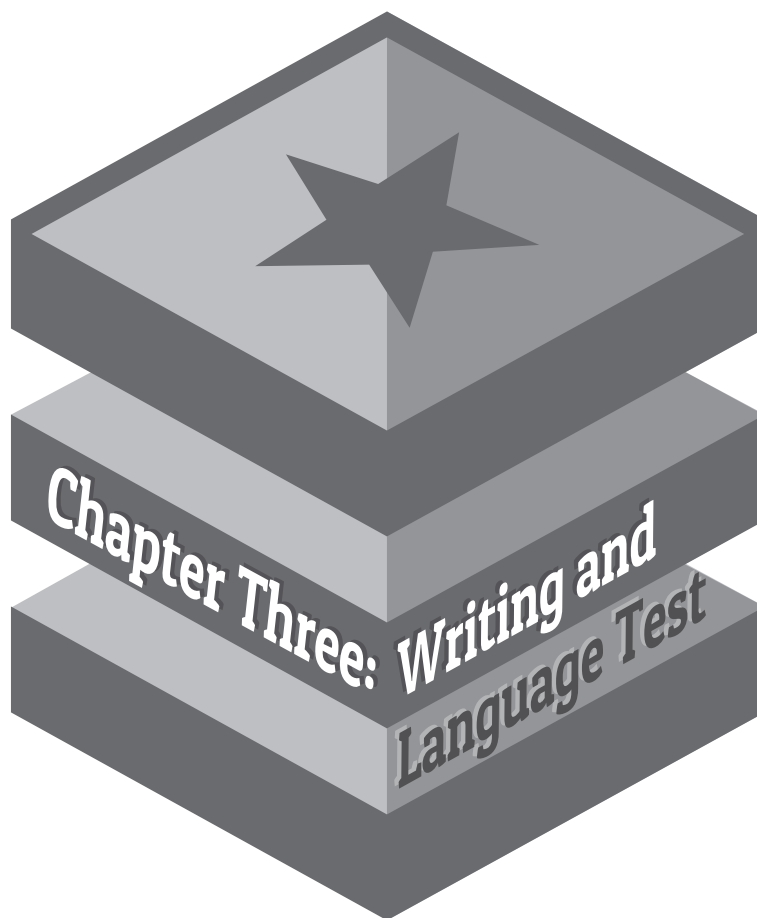
## » Mini-Test One Answer Explanations

- 11. The correct answer is B.** The first paragraph states that *smart devices...are mainly responsible for the accelerated rates of reported anxiety in teens*. The third and fourth paragraphs offer support to prove how *smart technology is responsible for both the uptick in anxiety and the downturn in optimism*. Choice A is incorrect because the passage describes an increase in anxiety and a decrease in optimism beginning in 2007 and does not focus on the teenagers' dependence on technology since this time. Choice C is incorrect because the passage has a negative, not positive, tone toward using responsive technology. Choice D is incorrect because the passage examines a connection between technology use and anxiety but does not propose a solution. Choice B is correct because the passage describes the link between technology and anxiety in teens, or the *impact of smart technology on life satisfaction in teenagers*.
- 12. The correct answer is B.** The question asks for support from the passage that would show a connection between technological advances and increased anxiety among teenagers. Choice A is incorrect because it does not focus on technology causing anxiety but rather describes how technology will follow teens into adulthood, as integration gains more prevalence in day-to-day life. Choice C is incorrect because although it calls the connection an *extraordinary claim*, it does not offer substantial evidence. Choice D is incorrect because it discusses society in general, not teenagers specifically. Choice B is correct because it describes information on a graph that connects increasing anxiety among teenagers with time passed since 2007, when smart devices began to appear on the market.
- 13. The correct answer is B.** Choice A is incorrect because the researchers primarily focus on the effect smart technology has on teenagers, not on older generations. Choice C is incorrect because the passage does not discuss which generation is more likely to create innovative technology. Choice D is incorrect because the passage implies the opposite—that life satisfaction decreases after using smart technology. Choice B is correct because the researchers focus on teenagers and increasing rates of anxiety being reported by them in recent years, indicating that smart technology especially affects this generation more than others, and mention this trend is only beginning to appear for older generations.
- 14. The correct answer is A.** This parenthetical element follows the word *optimism*. Choices B and C are incorrect because optimism is not a *system* or a previously stated *concern*. Choice D is incorrect because the lines modify a single word, not a statement. Choice A is correct because the rest of the paragraph refers to *optimism* multiple times, and this parenthetical element establishes a definition at the first mention to explain what the writer means when using this particular word.
- 15. The correct answer is D.** This word appears after the definition for optimism and in relation to a graph that compares rates of optimism and anxiety reported by each generation of teenagers. Choice A is incorrect because *ripe* typically refers to plants, not people, so this meaning does not fit in the context of the passage. Choices B and C are incorrect because it is not a logical comparison that being optimistic is equal to being perfect or full. Choice D is correct because *wisdom* is the best fit for the context of this passage, which focuses on developing teenagers.

## Chapter Three: Writing and Language Test

---

⊛ SAT Boot Camp ⊛





### » An Introduction to the Writing and Language Test

The Writing and Language test, part of the Evidence-Based Reading and Writing test, is a multiple-choice test that measures your ability to edit written passages. The test consists of **44 test items** to be completed in **35 minutes**. Questions on Writing and Language pull from two categories:

- **Expression of Ideas:** These questions focus on issues related to writing content and style, including tone, introductions and conclusions, and logical sequencing of ideas.
- **Standard English Conventions:** These questions focus on traditional grammar and punctuation, such as verb-tense agreement, comma usage, and sentence formation.

## Chapter Three: Writing and Language Test

★ Writing and Language Test ★

### » Complete: Verbs and Verbals

One of the most important features of a correct answer is **Completeness**. Every sentence on the SAT needs to be complete. Consider the following:

- Every sentence needs a **subject**. When you are testing answer choices, make sure you don't accidentally remove the subject.
- Every sentence needs a **verb**. Watch out for words that end in *-ing* or are preceded by the word *to*. These are called **verbals** and do not function as verbs in your sentence, even though they look like verbs.
- When in doubt, use the **Sounds Wrong Is Wrong** strategy. Even if you don't know why, you can probably "hear" when a sentence is incomplete.

Take a look at question 4 from the mini-test as an example:

At its core, the movement <b>4</b> <u>objecting</u> to the inefficiency in stride that running shoes cause. For example, typical runners wearing shoes pause ever so slightly on each stride when they land on their heels.	<b>4</b> A) NO CHANGE B) objects C) to object D) and objecting
--	--

Each of the answer choices contains either a verb, *objects*, or a verbal, *objecting* or *to object*. Investigate the sentence to see if there is already a verb for the subject, *movement*.

There is no other verb, so the correct answer needs to provide a **verb**, not a **verbal**. Only choice B provides a verb, so it is correct.

If you are surprised when a sentence suddenly ends with a period, you are likely looking at a verbal. Consider choice A as an example. The verbal causes the entire phrase *objecting to the inefficiency in stride that running shoes cause* to modify *movement*. That whole phrase is now part of the subject, so you would expect a verb to come after *cause* to explain what happens. Instead, this sentence sounds "cut off," which is a sign that you have an incomplete sentence caused by a verbal.

### » Introductions, Conclusions, and Transitions

The SAT will occasionally ask you to provide an introduction, conclusion, or transition that is based on the *content* of the passage. The secret to doing well on these questions is **focus** and **support**.

- **Introductions:** Look at the content of the sentence or paragraph that will receive the introduction. If the content in an answer choice is not relevant to or supportive of the following text, eliminate it.
- **Conclusions:** Depending on the question, look at the preceding sentence, paragraph, or entire passage. Eliminate any answers that focus on information that isn't relevant.
- **Transitions:** Look at the sentence or paragraph before the transition and compare it to the sentence or paragraph that comes after it. Select the choice that is most relevant to both pieces of the passage.

In either case, do **not** focus on how the answer **sounds**. These questions are focused on *content* and do not care about the *style* of the answer choice.

Look at question 17 from the mini-test as an example.

<p>Precisely engineered “controllers” designed with skill lower the turbines during bad weather, but the computer restricts operation to such a limited range that powerful wind speeds can be inconsistent or even nonexistent.</p> <p><b>17</b> <u>Glass acknowledged that these difficulties prevented efficient wind harnessing.</u> In an early prototype, they fashioned a more lightweight rotor for the turbine.</p>	<p><b>17</b> Which choice provides the most effective transition between ideas in the paragraph?</p> <p>A) NO CHANGE</p> <p>B) Glass concluded that ground turbines were not the best way to solve this problem.</p> <p>C) Glass solved this problem by exploring alternative wind-turbine options in collaboration with classmates in MIT’s Energy Ventures.</p> <p>D) Therefore, for Glass’s experiments, automated controllers were ineffective.</p>
--	---

This question asks for a transition between two ideas in the second paragraph. First, look at the ideas that come before and after the transition:

**BEFORE:** The first part of the paragraph provides an overview of some problems faced by typical ground turbines.

**AFTER:** The second part of the paragraph focuses on Glass’s prototype for solving the problems mentioned earlier.

Now, consider a transition sentence that links the two ideas: problems in the first part to solutions in the second part.

⊛ SAT Boot Camp ⊛



Writing and Language Test

# Mini-Test One

2

2

Questions 1-11 are based on the following passage.

**The Evolution of Barefoot Running**

In 2009, author Christopher McDougall sparked a change in the running community when he published his book about a native tribe’s barefoot running. Modern, up-and-coming athletes were convinced; **1** especially, those who valued injury prevention and running’s extensive history based on careful coaching and protective shoes worried that the trend signaled a threat to athlete safety. In response to the rising concerns of skeptical runners and worried medical **2** professionals, a group of athletes, coaches, and doctors formed the Barefoot Runners movement, declaring support for shoeless exercise. **3**

At its core, the movement **4** objecting to the inefficiency in stride that running shoes cause. For example, typical runners wearing shoes pause ever so slightly on each stride when they land on their heels. This inefficiency is the direct result of a bulky shoe sole. Barefoot runners, on the other hand, forgo materials that limit the foot’s natural range of movement. When training without shoes, a runner can have a stride three percent faster than she would with shoes. A barefoot runner feels the impact in the middle of the foot on which she lands, which, along

**1**

- A) NO CHANGE
- B) for instance,
- C) however,
- D) indeed,

**2**

- A) NO CHANGE
- B) professionals; a
- C) professionals: a
- D) professionals. A

**3**

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

The group’s mission was influenced by the fable of the deer and the hunter, in which a deer highly values the hooves that help her escape a hunter.

Should the writer make this addition here?

- A) Yes, because it describes the main principle that led to the creation of the Barefoot Runners movement.
- B) Yes, because it supports an argument that the writer makes earlier in the paragraph.
- C) No, because it blurs the paragraph’s focus by introducing a topic that is not further explained.
- D) No, because it distracts from the paragraph’s emphasis on the Barefoot Runners movement’s founding principles.

**4**

- A) NO CHANGE
- B) objects
- C) to object
- D) and objecting

## Chapter Three: Writing and Language Test

★ SAT Boot Camp ★

2

2

with other physical **5** factors such as technique and fitness results in a smoother, more fluid motion. If all runners trained without bulky footwear, **6** they would have strides that are much healthier.

From **7** their early years, the movement also encouraged the idea of **8** running with lots of energy for coaches and trainers during intense exercise. It emphasized the importance of investing in “professional, smart training.” As the movement expanded beyond readers of McDougall’s book—today he has sold more than 3,000,000 copies in over 140 countries—this emphasis on expertise **9** sketched criticism for being exclusive. Critics have also asked if exercising without shoes, as

5

- A) NO CHANGE
- B) factors, such as technique and fitness,
- C) factors such as, technique and fitness,
- D) factors, such as technique and fitness

6

- Which choice most effectively supports the central point of the paragraph?
- A) NO CHANGE
  - B) the public might be interested in learning about natural movement.
  - C) athletes would be able to understand how the foot lands.
  - D) they could achieve a faster pace.

7

- A) NO CHANGE
- B) there
- C) its
- D) it’s

8

- A) NO CHANGE
- B) vigorous exercise with coaches and trainers.
- C) moving quickly and with the help of professionals such as coaches and trainers.
- D) using coaches as well as trainers for fast-paced exercise.

9

- A) NO CHANGE
- B) depicted
- C) drew
- D) illustrated

2

2

opposed to with protective footwear, **10** can undeniably and universally benefit all runners? Given the great variety of people in the world, who among us can claim to know what's best for all body types? Such questions, in addition to a lack of long-term research, are at the heart of the ubiquitous debate about barefoot running.

Over time, Barefoot Runners has broadened its philosophy to celebrate running that is healthy, enjoyable, and safe for everyone. Supporters accept that minimalist shoes should sometimes be worn, depending on the physique of the athlete; they should be made using extremely thin material to allow ground feel; and they should protect from impact without hindering the foot mobility of those who wear them. **11** In summary, the Barefoot Runners movement supports organizations that allow for a variety of options for footwear in a sport where a single injury can derail the goals of professional athletes and hobby runners alike.

10

- A) NO CHANGE
- B) undeniably and universally can benefit all runners?
- C) can undeniably and universally benefit all runners.
- D) undeniably and universally can benefit all runners.

11

- A) NO CHANGE
- B) Nevertheless,
- C) To these ends,
- D) In the same spirit,

## Chapter Three: Writing and Language Test

★ Writing and Language Test ★

### » Specific Purpose

Some composition questions will task you to adjust a sentence for a very specific purpose. If you remember to **sell out** to the question and stay **focused**, you will do well on this type of question.

Consider question 21 from the mini-test.

More **21** consistent, stronger wind speeds produce a higher yield of energy, which translates to cheaper energy costs for consumers who would then pay a fraction of the cost for the same amount of energy provided by diesel and other nonrenewable fuels.

**21**

Which choice most effectively illustrates how the BAT's construction overcomes an obstacle, described earlier in the passage, that ground turbine towers face when harnessing wind power?

- A) NO CHANGE
- B) forceful
- C) accessible
- D) easily converted

When you sell out to the question, focus on the specific thing it wants you to emphasize. In this case, the question wants you to emphasize *the BAT's construction overcomes an obstacle...that ground turbine towers face when harnessing wind power*. Notice also that the question says this is described earlier in the passage.

With all that in mind, go find an obstacle that was mentioned earlier in the passage. The passage tells you that ground turbines can only work *within a small range of wind speeds, which results in problems with the structure*. Now find the choice that **focuses** on this point the most directly.

In this case, only choice A gives a specific description about the wind speed, so it is the correct answer.



### » Logical Sequence

If the SAT asks you to *move* a sentence to another place in the passage, you are dealing with a **Logical Sequence** question. These questions can be tricky, but the SAT will usually provide you one of two clues:

- **Time:** Look for a specific order of events in the paragraph. If you know the sentences need to go in a certain order, it is easier to figure out where the sentence should be moved.
- **Structure:** If there isn't a specific order based on time, look for a clue based on the structure of the paragraph. For example, if there is a shift in topic midway through the paragraph, you can use the topic of the sentence to figure out where it should go.

Look at question 28 from the mini-test.

<p>[1] Research librarians make large collections of data and information available to patrons, typically scholars working on highly specialized projects. [2] A skilled librarian has access to indexes and databases that the university library has customized (sometimes pulling from several thousand sources). [3] This resource can then be filtered and sorted to produce the most specific and accurate information possible for any given query. [4] Digital databases have become more widely integrated in libraries throughout the country, and university students are showing a preference for digital software over face-to-face interaction with a librarian. [5] Supporters of using a digital reference claim that this technology is the fastest way to get the largest quantity of source material, without having to rely on a human librarian's physical availability and limited knowledge. [6] However, with the ever-increasing use of the internet, dependence on librarians as a research aide is diminishing. <span style="background-color: #cccccc; padding: 2px 5px;">28</span></p>	<div style="background-color: #cccccc; padding: 2px 5px; margin-bottom: 5px;">28</div> <p>To make this paragraph most logical, sentence 6 should be placed</p> <p>A) where it is now.          B) after sentence 2.          C) after sentence 3.          D) after sentence 4.</p>
---	---

### » Writing and Language Test Wrap-Up

Use this page to remind you of the strategies you learned in this chapter. It's a good idea to review this wrap-up the day before you take the SAT.

- **Pacing Gates:** Make sure you know exactly when you need to complete each passage.
  - **Passage 1**—12:07
  - **Passage 2**—12:14
  - **Passage 3**—12:23
  - **Passage 4**—12:32
- **E3:** Review the basic approach to Writing and Language questions.
  - **Entrance:** Determine the type of test item. Is there a question or no question?
  - **Elimination:** Eliminate incorrect choices until you settle on the correct answer.
  - **Exit:** After you eliminate everything you can, make an intelligent guess and move on.
- **Four C's:** When you don't have a question, lean on the four C's.
  - **Complete:** Make sure the correct answer is a complete sentence.
  - **Correct:** Eliminate any answers that violate a strict rule of grammar.
  - **Concise:** Avoid redundancy and wordiness with short answers.
  - **Context:** Use the context of the passage to keep the answer consistent.
- **Core Question Strategies:** Go over the core strategies covered in this book.
  - **Verbs and Verbals**—Page 92
  - **Commas**—Page 94
  - **Redundancy**—Page 98
  - **Agreement**—Page 100
  - **Composition Questions**—Page 107
  - **Specific Purpose**—Page 110
  - **Introductions, Conclusions, and Transitions**—Page 112
  - **Logical Sequence**—Page 119
  - **Combination**—Page 122
  - **Quantitative Questions**—Page 124

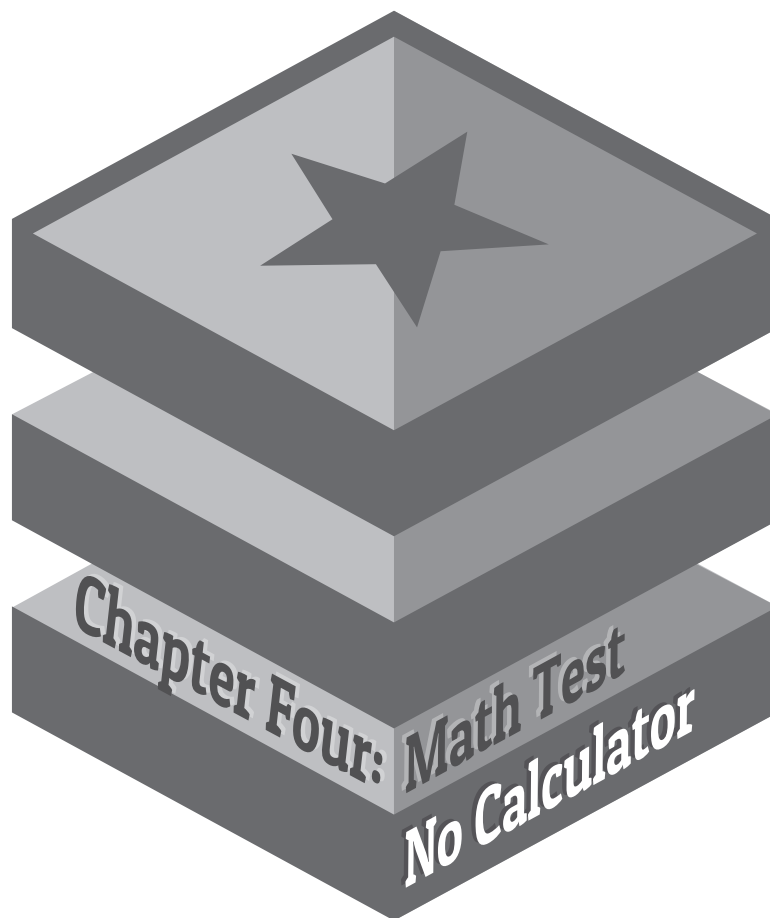
### » Mini-Test One Answer Explanations

- 1. The correct answer is C.** The first part of the sentence describes modern athletes who agree with the idea of barefoot running, but the second part of the sentence suggests another group of people who worry about its disadvantages. This relationship is a contrast. Choices A and D are incorrect because *especially* and *indeed* are transition words used for emphasis. Choice B is incorrect because *for instance* indicates an example will follow, which is not the case in this sentence. Choice C best characterizes the contrasting relationship between the two ideas in the paragraph using the word *however*, so it is the correct answer.
- 2. The correct answer is A.** The sentence begins with a prepositional phrase that describes why the group *formed the Barefoot Runners movement*. Because it is an introductory phrase, it should be separated from the rest of the sentence by a comma. Choices B, C, and D are incorrect because a semicolon, colon, or period can only follow an independent clause. Choice A uses a comma, so it is the correct answer.
- 3. The correct answer is C.** The sentence should not be added because it distracts from the main focus of the paragraph, which is the circumstances surrounding the establishment of the Barefoot Runners movement. Choices A and B are incorrect because the sentence should not be added. Choice D is incorrect because the paragraph discusses two opposing attitudes toward running with shoes and does not delve into the origins of either philosophy. Choice C provides the best reasoning for not adding the sentence, so it is the correct answer.
- 4. The correct answer is B.** In order to form a complete sentence, the subject *movement* requires a present tense verb. Choices A and D are incorrect because *objecting* is a participle and creates a sentence fragment. Choice C is incorrect because *to object* is an infinitive and also creates an incomplete sentence. Only choice B, *objects*, provides a conjugated verb, so it is the correct answer.
- 5. The correct answer is B.** The phrase *such as technique and fitness* is a parenthetical element, so it should be set off from the rest of the sentence with commas. Choice A is incorrect because it treats the phrase as essential to the sentence and does not use any commas to offset it. Choices C and D are incorrect because they do not place a comma in both necessary locations. Choice B correctly punctuates the parenthetical element, so it is the correct answer.
- 6. The correct answer is D.** Choice A is incorrect because it misinterprets the main idea of the paragraph to be about *healthy* running rather than fast, efficient running. Choice B is incorrect because it is too broad, focusing on *natural movement* in a general way rather than the specific speed advantage achieved through barefoot running. Choice C is incorrect because although a landing foot position is mentioned in the paragraph, it is not the central point. Choice D is correct because the central point of this paragraph is that running with shoes is inefficient, slowing runners down, but barefoot runners can achieve a more fluid and faster stride.
- 7. The correct answer is C.** The pronoun references *the Barefoot Runners movement*, which is a singular noun. It also indicates ownership of the phrase *early years*, so a singular possessive pronoun is needed. Choice A is incorrect because it is a plural possessive pronoun. Choice B is incorrect because *there* is neither a pronoun nor possessive. Choice D is incorrect because *it's* is a contraction for *it is*, which is not a possessive pronoun. Choice C uses the singular possessive pronoun *its*, so it is the correct answer.

## Chapter Four: Math (No Calculator)

---

⊛ SAT Boot Camp ⊛



### » An Introduction to the No Calculator Section

The No Calculator section of the Math test is a multiple-choice test focused on measuring your ability to solve math problems without the help of a calculator. The test consists of **20 test items** to be completed in **25 minutes**. The questions on the No Calculator section will pull from four categories:

- **Heart of Algebra:** These questions will review the fundamentals of algebra, such as solving equations, functions, and inequalities.
- **Problem Solving and Data Analysis:** This category encompasses a variety of questions related to statistical analysis, such as averages, scatter plots, and probability.
- **Passport to Advanced Math:** These questions focus on more advanced topics in algebra, including nonlinear equations and functions.
- **Additional Topics in Math:** These questions cover a wide range of topics, from concepts in geometry to complex numbers. This is the least commonly tested category.

#### Two Question Types

There are two types of test items on the **No Calculator** section.

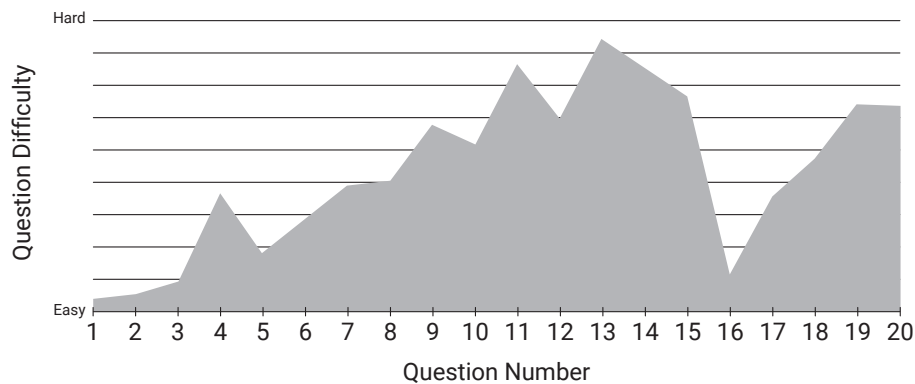
- **Multiple-Choice** questions provide **four** possible answers to choose from, with exactly one correct answer. Questions 1 to 15 are multiple-choice.
- **Grid-In** questions are free response and can have multiple acceptable answers. Questions 16 to 20 are grid-in.

## Chapter Four: Math (No Calculator)

⊛ Math Test – No Calculator ⊛

### » No Calculator Difficulty

The difficulty of the **No Calculator** section follows a specific pattern, depicted in the graph below.



There are three important conclusions to draw from this graph:

- The test starts easy and gets harder over time.
- The difficulty resets at question 16, right when the grid-in questions begin.
- It does not make sense to take the test in the order it is written.

These points taken together indicate that you should rearrange the order of the test to take advantage of the difficulty pattern.

- **Start at question 16** and attempt each grid-in question in order, skipping difficult questions.
- **Flip back to question 1** and complete all of the multiple-choice questions in order, skipping difficult questions.
- Before completing the test, take a **second look** on all of the questions you marked for review.

### » A Note About Calculators

The biggest challenge of the No Calculator section is that you are not allowed to use your calculator. (Crazy, we know.) The good news is that the test is designed so that you do not need to use a calculator to answer any of the questions, but there are some things you need to keep in mind:

- **Use Your Pencil:** You already know how important breadcrumbs are for your second look, but it is also important that you track everything you do to improve your accuracy. Calculation errors are the easiest mistakes to make in this section because you don't have your calculator to back you up.
- **Mental Math:** Make use of mental shortcuts to speed up your work. While it is important to show your work when you can, you need to take as many shortcuts as you can to comfortably finish on time.

## Chapter Four: Math (No Calculator)

⊛ Math Test – No Calculator ⊛

### » Grid-In: Guess and Check

Sometimes the best approach to a math item is to use a **strategy**. For example, if you don't know how to solve a grid-in question, you can try guessing numbers. Keep the following in mind when you answer a grid-in question:

- The answer will **never** be negative, so make sure you only guess positive numbers or 0.
- The answer is **usually** an integer, so start with whole numbers when you guess.
- Think about the values as you guess. Are you getting closer or further away from the correct answer?
- Don't guess randomly: avoid numbers that are obviously too small or too large.

Take a look at question 16 from the mini-test:

16

$$x^2 + x - 20 = 0$$

If  $p$  is a solution of the equation above and  $p > 0$ , what is the value of  $p$ ?

The 20 in the problem means that you can avoid guessing 1 or 2. These numbers will likely be too small. Start with 3.

$$3^2 + 3 - 20$$

$$9 + 3 - 20$$

$$-8$$

Since the answer came out to be too small, guess the next largest integer, 4, and see if it moves you in the correct direction. We need the expression to equal 0 (the same as the right side of the equation).

$$4^2 + 4 - 20$$

$$16 + 4 - 20$$

$$0$$

This works, so we know that our answer is 4.



## » Interpretation

If you see a word problem with answer choices that are written as sentences or otherwise use a lot of words, you are likely looking at an **Interpretation** question. Interpretation questions will ask you to *interpret* the meaning of part of a particular equation or function inside the context of a real-world situation.

Look at question 6 from the mini-test as an example:

6

Sanjay is a programmer for an online gaming company. Each month, he is assigned a batch of errors in the games that need to be fixed. The number of errors that he has left to fix at the end of each month can be estimated with the equation  $E = 145 - 8d$ , where  $E$  is the number of errors left and  $d$  is the number of days he has worked that month. What is the meaning of the value 145 in the equation?

- A) Sanjay fixes errors at a rate of 145 per day.
- B) Sanjay fixes errors at a rate of 145 per hour.
- C) Sanjay begins each month with 145 errors to fix.
- D) Sanjay will complete the fixes within 145 days.

If you have an interpretation question, there is a simple template to follow:

$$y = mx + b \text{ or } y = b + mx$$

$b$  = the starting point

$m$  = the rate of change

(You might recognize this as the slope-intercept formula.)

Map the equation from the item to this template.

$$E = 145 - 8d$$

145 = the starting point

-8 = the rate of change

Now consider the question: is it asking for the starting point or the change? In this case it is asking for the meaning of 145, which we marked as *the starting point*. Only choice C is related to a starting point (*begins*), so it is the correct answer.

⊛ SAT Boot Camp ⊛



Math Test – No Calculator

# Mini-Test One

3



3

16

$$x^2 + x - 20 = 0$$

If  $p$  is a solution of the equation above and  $p > 0$ , what is the value of  $p$ ?

17

The sum of  $-3x^2 + 3x + 23$  and  $4x^2 + 3x - 6$  can be written in the form  $ax^2 + bx + c$ , where  $a$ ,  $b$ , and  $c$  are constants. What is the value of  $a + b + c$ ?

18

$$-a + b = -2.5$$

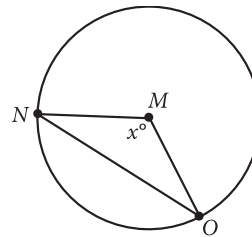
$$a + 5b = 11.5$$

If  $(a, b)$  satisfies the above system of equations, what is the value of  $b$ ?

19

A hair salon opened with 12 clients. The salon's growth plan assumes that 8 new clients will be gained each quarter (every 3 months) for the first 2 years. If an equation is written in the form  $y = ax + b$  to represent the number of clients,  $y$ , served by the salon  $x$  quarters after the salon opened, what is the value of  $b$ ?

20



In the circle above, point  $M$  is the center and the length of arc  $\widehat{NO}$  is  $\frac{3}{8}$  of the circumference of the circle. What is the value of  $x$ ?

# Chapter Four: Math (No Calculator)

★ Math Test – No Calculator ★

## 3 3

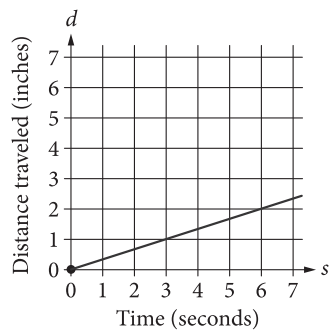
**1**

$$4p + p + p - 4 - 1 = 4 + p + p + p$$

In the equation above, what is the value of  $p$ ?

- A)  $-\frac{5}{4}$
- B) 1
- C)  $\frac{9}{8}$
- D) 3

**2**



The graph above shows the distance traveled  $d$ , in inches, of a remote-control car on the sidewalk  $s$  seconds after the car is placed on the ground. Which of the following equations correctly relates  $d$  and  $s$ ?

- A)  $d = 3s$
- B)  $d = \frac{1}{3}s$
- C)  $d = s + 3$
- D)  $d = \frac{1}{3}s + 3$

**3**

The formula below is typically used by plant managers to calculate  $T$ , the estimated time to complete a production cycle, where  $L$  is the longest production time,  $S$  is the shortest production time, and  $A$  is the average production time.

$$T = \frac{L + 5A + S}{7}$$

Which of the following correctly gives  $S$  in terms of  $T$ ,  $L$ , and  $A$ ?

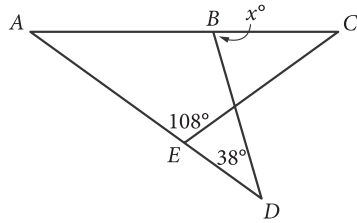
- A)  $S = 7T - L - 5A$
- B)  $S = -7T + L + 5A$
- C)  $S = \frac{L + 5A + T}{7}$
- D)  $S = \frac{L + 5A - T}{7}$

3



3

4



In the figure above  $AE = EC$ . What is the value of  $x$ ?

- A) 86
- B) 72
- C) 74
- D) 53

5

The length of a rectangular pet crate is  $l$  inches. The width of the crate is 9 inches longer than the length. Which of the following expresses the perimeter, in inches, of the pet crate in terms of  $l$ ?

- A)  $2l + 9$
- B)  $4l + 18$
- C)  $l^2 + 9$
- D)  $l^2 + 9l$

### » No Calculator Wrap-Up

Use the following page as a guide to review the No Calculator section of the Math test.

- **Pacing Gates:** Make sure you know exactly when you need to compete each section of the No Calculator section of the Math test.
  - **Questions 16 to 20**—12:04
  - **Questions 1 to 5**—12:08
  - **Questions 6 to 10**—12:12
  - **Questions 11 to 15**—12:16
- **ESE:** Review the basic approach to Math questions.
  - **Entrance:** Break the item down into the **question** and **starting information**.
  - **Solve/Strategize/Skip:** Decide whether you want to **solve** the question, use a **strategy**, or **skip** it for now.
  - **Exit:** Double-check your work if you found an answer and **guess intelligently** otherwise.
- **Core Question Strategies:** Go over the core strategies covered in this book.
  - **Mental Math Must Haves**—Page 150
  - **Grid-In: Guess and Check**—Page 154
  - **Problem-Solving**—Page 156
  - **Grid-In: Bubbling**—Page 158
  - **Answer Awareness**—Page 162
  - **Plug In**—Pages 164 and 175
  - **Interpretation**—Page 173
  - **Easy Mode**—Page 181
  - **Reframe**—Page 183

## » Mini-Test One Answer Explanations

- 16. The correct answer is 4.** Factor the expression and solve for  $x$ .

$$x^2 + x - 20 = 0$$

$$(x + 5)(x - 4) = 0$$

$$x = -5 \text{ and } 4$$

Because the question says  $p$  is the solution that is greater than zero,  $p = 4$ .

- 17. The correct answer is 24.** First find the sum of the two expressions.

$$\begin{array}{r} -3x^2 + 3x + 23 \\ + (4x^2 + 3x - 6) \\ \hline x^2 + 6x + 17 \end{array}$$

Next, determine the values for  $a$ ,  $b$ , and  $c$  and add them together. For  $x^2 + 6x + 17$  in the form  $ax^2 + bx + c$ ,  $a = 1$ ,  $b = 6$ , and  $c = 17$ . Together, these coefficients are  $1 + 6 + 17 = 24$ .

- 18. The correct answer is  $\frac{9}{6}$ ,  $\frac{3}{2}$ , or 1.5.** Add the equations together to cancel out the  $a$  values and solve for  $b$ .

$$-a + b = -2.5$$

$$+ (a + 5b = 11.5)$$

$$0 + 6b = 9$$

$$6b = 9$$

$$b = \frac{9}{6} \text{ which reduces to } \frac{3}{2}$$

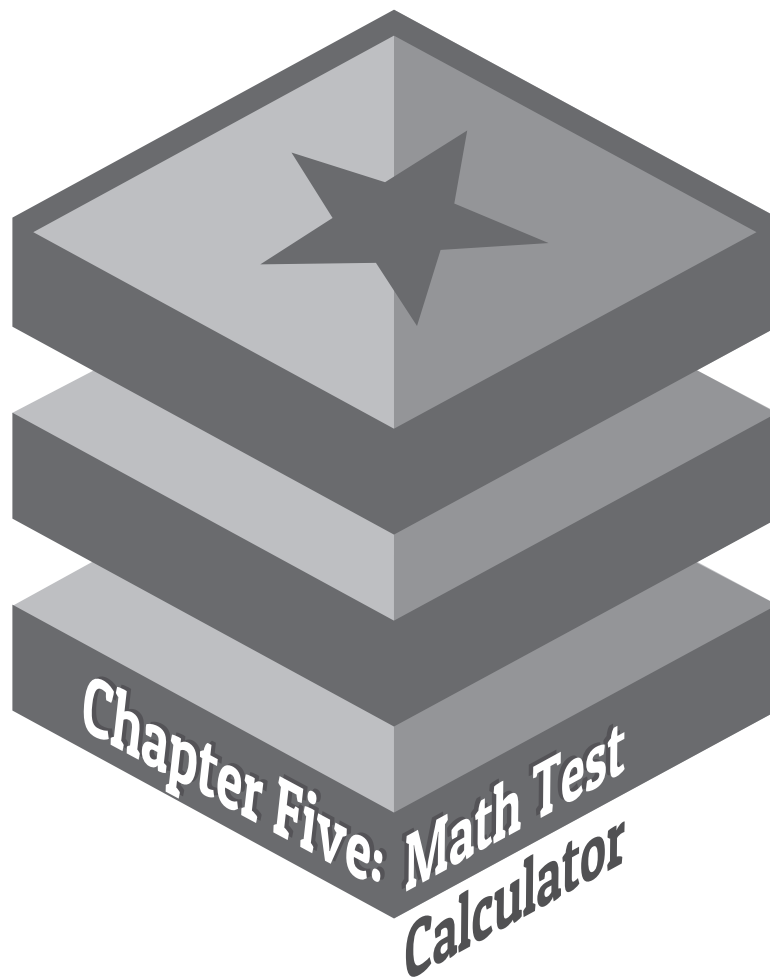
All of the following forms would be accepted as correct answers:  $\frac{9}{6}$ ,  $\frac{3}{2}$ , or the decimal equivalent 1.5.

- 19. The correct answer is 12.** In an equation in the form  $y = ax + b$ ,  $a$  is the slope, or the constant rate of change in clients per quarter, and  $b$  is the  $y$ -intercept, or the number of clients when  $x = 0$ . Since  $x$  is the number of quarters after the salon opened,  $x = 0$  represents the salon's opening. At the time of opening, the salon had 12 clients, that is, when  $x = 0$ ,  $y = 12$ . Therefore, the  $y$ -intercept,  $b$ , is 12.
- 20. The correct answer is  $135^\circ$ .** In a circle the ratio of arc length to circle circumference is the same as the ratio of the central angle measure to the circle's total angle measure ( $360^\circ$ ). If the arc length is  $\frac{3}{8}$  of the circle circumference, its angle measure is  $\frac{3}{8} \cdot 360 = 135^\circ$ .

## Chapter Five: Math Test (Calculator)

---

⊛ SAT Boot Camp ⊛





### » An Introduction to the Calculator Section

The Math Test - Calculator section is a multiple-choice and grid-in test that measures your ability to solve math problems with or without the help of a calculator. The section consists of **38 test items** to be completed in **55 minutes**. The questions on the Calculator section will pull from the same four categories as the No Calculator section:

- **Heart of Algebra:** These questions will review the fundamentals of algebra, such as solving equations, functions, and inequalities.
- **Problem-Solving and Data Analysis:** This category encompasses a variety of questions related to statistical analysis, such as averages, scatter plots, and probability.
- **Passport to Advanced Math:** These questions focus on more advanced topics in algebra, including nonlinear equations and functions.
- **Additional Topics in Math:** These questions cover a wide range of topics, from concepts in geometry to complex numbers. This is the least commonly tested category.

#### Two Question Type

Just like the No Calculator section, there are two types of questions on the **Calculator** section.

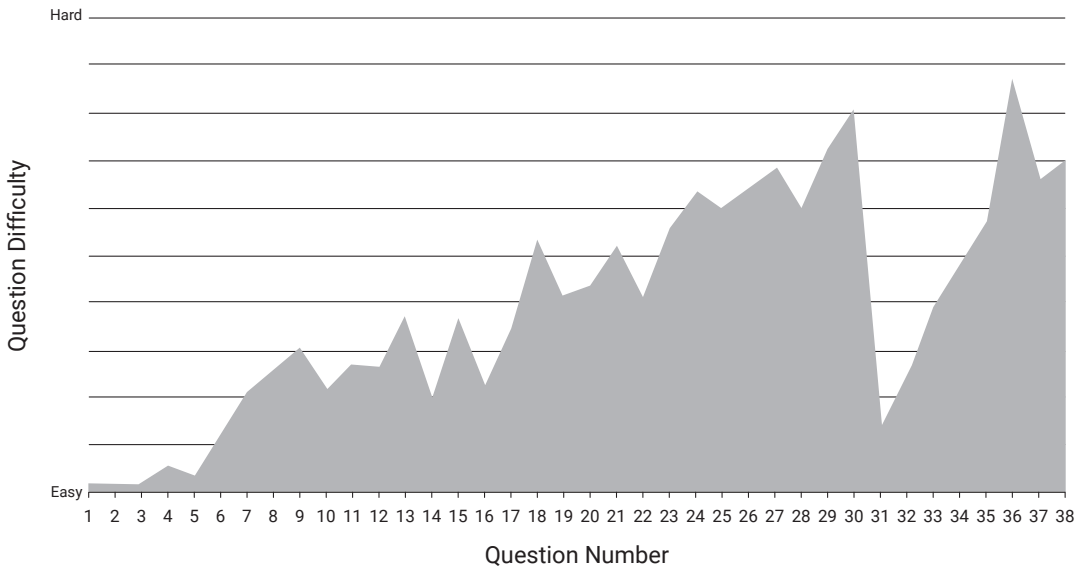
- **Multiple-Choice** questions provide **four** possible answers to choose from, with exactly one correct answer. Questions 1 to 30 are multiple-choice.
- **Grid-In** questions are free response and can have multiple acceptable answers. Questions 31 to 38 are grid-in.

# Chapter Five: Math Test (Calculator)

★ SAT Boot Camp ★

## » Calculator Difficulty

The difficulty of the **Math Test - Calculator** section follows a similar pattern to that of Math Test - No Calculator section. The graph pictured below illustrates this pattern.



You can draw the same conclusions from this pattern of difficulty as you did for the No Calculator section:

- The section starts easy and gets harder over time.
- The difficulty resets at question 31, right when the grid-in questions begin.
- It does not make sense to take the test in the order it is written.

You should rearrange the order of the test to take advantage of the difficulty pattern in the same way you did for the No Calculator section.

- **Start at question 31** and attempt each grid-in question in order, skipping difficult questions.
- **Flip back to question 1** and complete all the multiple-choice questions in order, again skipping the tougher questions.

Before completing the test, take a **second look** at all the questions you marked for review.

### » Calculator Reminders

Naturally, the major difference between the Math Test - Calculator section and the Math Test - No Calculator section is the calculator itself. While it is helpful to have access to your calculator for this section, you need to have a good strategy for using it.

- **Use Your Breadcrumbs:** It is even more important that you actively leave yourself breadcrumbs when you use your calculator. If you do all the work in the calculator, you will not be able to easily double-check your work or come back to a skipped question on your second look.
- **Mental Math:** It is tempting to use your calculator whenever possible, but it is smarter to only use your calculator when you *need to use it*. If you can use mental math or some simple scratch work, it will be faster **not** to use your calculator. Remember: the calculator is only a tool.

Combine these points together to develop a simple process for using your calculator:

- 1) **Set up the Problem:** Write down the equations or formulas you need.
- 2) **Check the Math:** If the math is simple enough for mental math or simple scratchwork, solve it on paper and don't use your calculator.
- 3) **Use the Calculator If Necessary:** If a calculator will help you solve the question faster, use it.
  - Place the calculator on your desk when you use it. If you hold it in your hands, you will be less accurate.
  - Take your time to enter everything correctly. It is harder to diagnose an error with a calculator.

### » Plug In Revisited

So far you have learned several different ways to use the **Plug In** method to determine the answer to traditional algebra questions, especially word problems. The same strategy can also be used to solve more unusual algebra questions.

Look at question 23 from the mini-test as an example.

23

Let  $m$  and  $n$  be numbers such that  $-n < m < n$ . Which of the following must be true?

- I.  $m > 0$
  - II.  $n > 0$
  - III.  $|m| < n$
- A) III only  
B) I and III only  
C) II and III only  
D) I, II, and III

Before you start plugging in numbers, look at the answers. Notice that all four choices include Roman numeral III. This means Roman numeral III **must be true** and you will only need to test Roman numerals I and II.

Start by testing Roman numeral I. Because the question wants to know what *must be true*, you should plug in values to try to disprove that  $m > 0$ . Use a negative value for  $m$ , such as  $-2$ .

In order to pick a value for  $n$ , use what you know from Roman Numeral III:  $|m| < n$ . Plug a value in for  $n$  that works with this information and  $m = -2$ , such as  $n = 3$ .

Now test the inequality given by the item with these values:

$$-n < m < n$$

$$-3 < -2 < 3$$

This works, so check Roman numeral I again. Since  $m$  can be less than 0, eliminate Roman numeral I, which also eliminates answer choices B and D.

Next, try the same method on Roman numeral II. In order to eliminate this numeral, you will need to pick a value for  $n$  that is *less than* 0. Before you pick numbers, look at the information in Roman numeral III again.

It is not possible to pick a negative value for  $n$  because  $|m| < n$ , and absolute values must always be 0 or greater. Therefore, Roman numeral II must always be true, making choice C correct.

## » Systems of Equations

There are several strategies to find the answer to a system of equations, ranging from **Guess and Check** to **Plug In**, but sometimes the fastest way is to **solve** instead of using a strategy.

The SAT will usually set the equations up so that you can solve by **Elimination** instead of substituting one equation into the other. Keep the following in mind when you eliminate:

- Determine the variable you want to **remove**.
- Find a **multiple** of one of the equations so that the variable you want to remove has the same coefficient.
- **Subtract** one equation from the other, canceling out the unwanted variable.

Look at question 20 to see how this is done.

20

A farmer's market sells flowers for \$4.50 each and herbs for \$3.00 each. The farmer's market sells a total of 122 flowers and herbs in one day for a total revenue of \$493.50. How many flowers were sold that day?

- A) 41
- B) 66
- C) 85
- D) 99

Translate the word problem into two equations, using  $f$  for flowers and  $h$  for herbs.

$$4.5f + 3h = 493.5$$

$$f + h = 122$$

Since you want to solve for *flowers*, you want to remove *herbs*, represented by  $h$ . Multiply the second equation by 3 to make sure the  $h$  cancels out.

$$4.5f + 3h = 493.5$$

$$3f + 3h = 366$$

Now, subtract the second equation from the first equation.

$$1.5f = 127.5$$

$$f = 85$$

★ SAT Boot Camp ★



Math Test – Calculator

# Mini-Test One

4



4

31

There are two atoms of oxygen and one atom of carbon in one molecule of carbon dioxide. How many atoms of oxygen are there in 33 molecules of carbon dioxide?

32

$$x - \frac{1}{4}p = 0$$

If  $x = 1$  in the equation above, what is the value of  $p$ ?

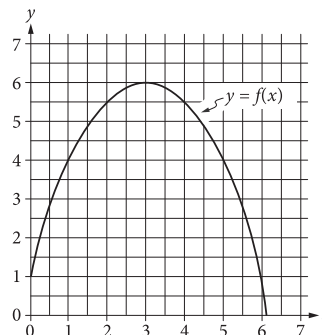
33

In the  $xy$ -plane, the equations  $x + 3y = 8$  and  $3x + 9y = k$  represent the same line for some constant  $k$ . What is the value of  $k$ ?

34

The recommended monthly deposit,  $D$ , in dollars, for the retirement account of a person with monthly income  $i$  can be modeled by the equation  $D = \frac{i + 150}{5}$ . According to this formula, for every 1 dollar increase in monthly income, by how many dollars should the monthly deposit for the retirement account increase? (Disregard the dollar sign in your answer.)

35



The graph of the function  $f$ , defined by

$$f(x) = -\frac{1}{2}(x - 3)^2 + 6,$$

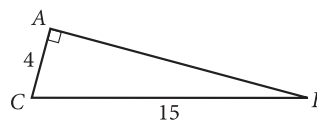
is shown in the  $xy$ -plane

above. If the function  $g$  (not shown) is defined by

$$g(x) = -2x + 6,$$

what is one possible value of  $b$  such that  $f(b) = g(b)$ ?

36



In the triangle  $ABC$  above, point  $O$  (not shown)

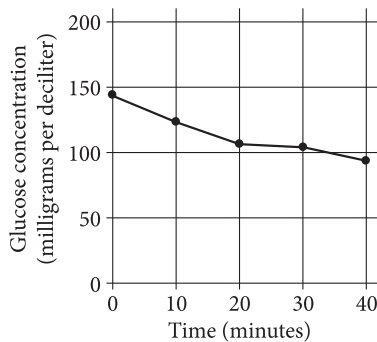
lies on  $\overline{CB}$ . What is the value of

$$\cos(\angle BAO) - \sin(\angle OAC) ?$$

4 4

Questions 37 and 38 refer to the following information.

Minutes after injection	Glucose concentration (milligrams per deciliter)
0	140
10	125
20	111
30	97
40	94



When a patient receives an insulin injection, the cells in the body begin absorbing glucose from the bloodstream. The table and graph above show the glucose concentration in a patient's bloodstream at 10-minute intervals for the 40 minutes immediately following a post-meal insulin injection.

37

According to the table, how many more milligrams of glucose are present in 5 deciliters of blood measured in a patient 10 minutes after injection than are present in 4 deciliters of blood measured 20 minutes after injection?

38

The glucose concentration, in milligrams per deciliter, in the patient's bloodstream  $t$  minutes after the insulin injection is modeled by the function  $G$  defined by  $G(t) = 140b^{\frac{t}{10}}$ . If  $G$  approximates the values in the table to within 10 milligrams per deciliter, what is the value of  $b$ , rounded to the nearest tenth?



**Extra Practice:**

Try out this strategy on the following questions:

**Questions 37 and 38 refer to the following information.**

An entomologist is researching a rare species of insect in a controlled environment and currently has 4000 of these insects. The population of this species that the entomologist expects to have next year,  $P_{\text{next year}}$ , can be estimated from the number of insects this year,  $P_{\text{this year}}$ , using the equation below.

$$P_{\text{next year}} = P_{\text{this year}} + 0.3(P_{\text{this year}})\left(1 - \frac{P_{\text{this year}}}{K}\right)$$

The constant  $K$  in this formula is the number of insects the environment is able to support.

37

According to the formula, what will be the number of insects two years from now if  $K = 5000$ ? (Round your answer to the nearest whole number.)

38

The entomologist wants to increase the number of insects that the environment can support so that the populations of the species will grow more rapidly. If the entomologist's goal is that the number of insects will increase from 4000 this year to 4560 next year, how many insects must the modified environment be able to support?

## Section Six: Writing

★ SAT Boot Camp ★

### » Calculator Wrap-Up

Use the following page as a guide to review the Calculator section of the Math test.

- **Pacing Gates:** Know exactly how much time you need to spend on each section of the Calculator section:
  - **Questions 31 to 38**—12:08
  - **Questions 1 to 8**—12:16
  - **Questions 9 to 16**—12:24
  - **Questions 17 to 24**—12:32
  - **Questions 25 to 30**—12:40
- **ESE:** Review the basic approach to Math questions:
  - **Entrance:** Break the item down into the **question** and **starting information**.
  - **Solve/Strategize/Skip:** Decide whether you want to **solve** the question, use a **strategy**, or **skip** it for now.
  - **Exit:** Double-check your work if you found an answer and **guess intelligently** otherwise.
- **Core Question Strategies:** Go over the core strategies covered in this book:
  - **Grid-In: Interpretation**—Page 208
  - **Multi-Part Questions**—Page 210
  - **Plug In**—Pages 218, 239, and 248
  - **Mental Math**—Page 220
  - **Just Graph It**—Page 222
  - **The Power of One**—Page 229
  - **Percentages**—Page 232
  - **Equivalent Expressions**—Page 241
  - **Systems of Equations**—Page 243
  - **Follow Your Nose**—Page 250

## » Mini-Test One Answer Explanations

- 31. The correct answer is 66.** Set up a proportion and solve for the number of oxygen atoms. For 1 molecule of carbon, there are 2 atoms of oxygen.

$$\frac{1}{2} = \frac{33}{x}$$

$$x = 2 \cdot 33 = 66 \text{ atoms of oxygen}$$

- 32. The correct answer is 4.** Plug in 1 for  $x$  and solve for  $p$ .

$$x - \frac{1}{4}p = 0$$

$$1 - \frac{1}{4}p = 0$$

$$1 = \frac{1}{4}p$$

$$4 = p$$

- 33. The correct answer is 24.** The two equations represent the same line, so they are equivalent equations. This means you can manipulate the values in the first equation to become the second equation. Start with  $x$ . To go from  $x$  in the first equation to  $3x$  in the second equation requires multiplying by 3. In fact, if you multiply the entire first equation by 3, it looks a lot like the second equation.

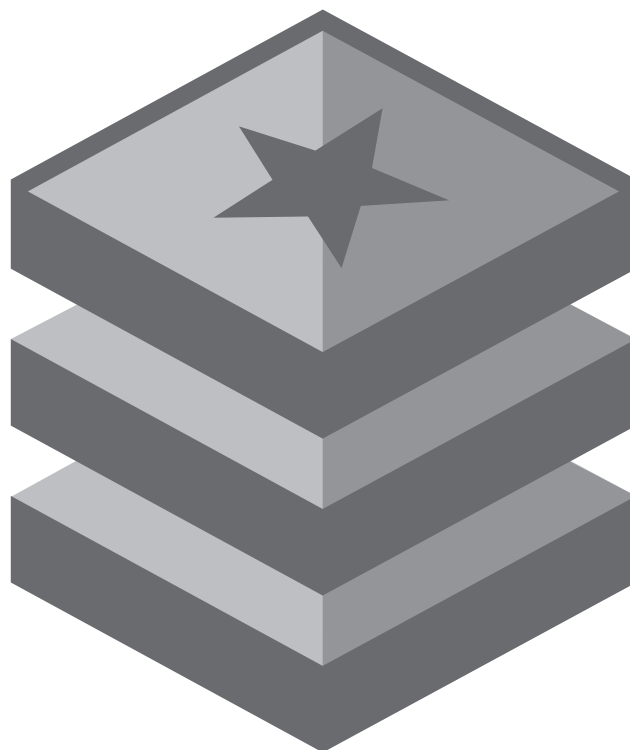
$$3(x + 3y) = (3)8 \text{ becomes } 3x + 9y = 24$$

$$\text{Since } 3x + 9y = k, \text{ then } k = 24.$$

- 34. The correct answer is  $\frac{1}{5}$  or 0.2.** The equation can be rewritten in the form  $y = mx + b$ , where the slope  $m$  is the rate of change in  $y$  over  $x$ . The equation  $D = \frac{i + 150}{5}$  becomes  $D = \frac{i}{5} + \frac{150}{5}$  or  $D = \frac{1}{5}i + 30$ . In this format, the slope,  $m$ , is the rate of change in  $D$ , recommended monthly deposit, per change in  $i$ , monthly income. This means that for every \$1 increase in monthly income, the recommended monthly deposit amount changes by  $\frac{1}{5}$  or 0.2 dollars.

★ SAT Boot Camp ★

## Chapter Seven: PSAT Overview



### » What Do You Want to Do?

The PSAT is one of the most important tests you will take during high school, but with all the emphasis on prepping for the test, it is easy to lose sight of the reason *why* it is so important in the first place.

- **The PSAT can get you on track for your dream school:** Nearly every college and university considers the SAT as one of the two most influential parts of your application. (Your high school GPA is the other.) The PSAT will help you prep for the SAT and will let you know whether you are on track for success.
- **The PSAT will help you pay for college:** If you score high enough on the PSAT, you could qualify for a variety of scholarships, including the National Merit Scholarship program among others.

**What motivates you to go to college?**

**The PSAT is not “just another test.”** Even if you feel burned out by all the tests you take, remember that a good score on the PSAT can open the door to opportunities and pave the way for your goals. Keep your eye on the prize and keep studying.

## Chapter Seven: PSAT Overview

★ SAT Boot Camp ★

### » Orientation

The PSAT is a marathon of a test. Between Reading, Writing, and two Math sections, you will spend nearly 3 hours answering over 100 test items engineered to assess whether you are on track for college.

Sequence	Subject	Test Items	Passages	Time
1	Reading Test	47	5	60 minutes
2	Writing and Language Test	44	4	35 minutes
Break				10 minutes
3	Math Test - No Calculator	17	-	25 minutes
Break				5 minutes
4	Math Test - Calculator	31	-	45 minutes

The **Reading Test** measures your ability to interpret and comprehend reading passages from both modern and historical sources.

The **Writing and Language Test** assesses your knowledge of grammar and punctuation, as well as your mastery of rhetoric and composition.

The **Math Test - No Calculator** checks your ability to solve mathematical problems with a heavy emphasis on algebra. No calculators are allowed.

The **Math Test - Calculator** examines your ability to solve a greater variety of mathematical problems with an emphasis on comprehension. Calculators are allowed for this section.

## » How the PSAT Is Scored

In order to be mentally prepared for the PSAT, you need to have a clear goal in mind.

What is your overall goal score for the PSAT? \_\_\_\_\_

What is your goal for Math? \_\_\_\_\_

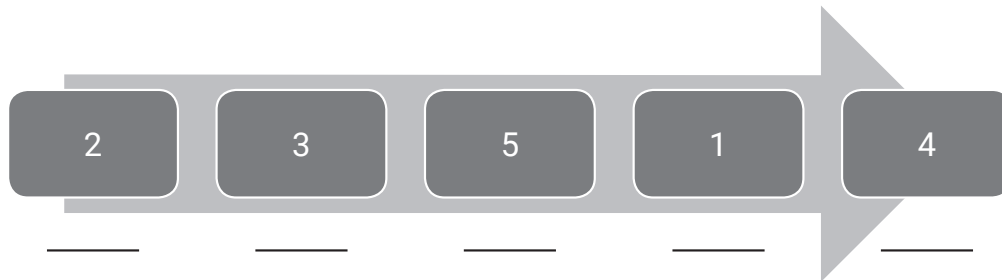
What is your goal for Evidence-Based Reading and Writing? \_\_\_\_\_

**PSAT Conversion Table**

Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score	Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score
0	160	8	8	25	560	26	25
1	190	9	9	26	570	26	26
2	210	10	10	27	580	27	27
3	240	11	11	28	580	27	27
4	270	12	12	29	590	28	28
5	290	14	13	30	600	28	28
6	320	15	14	31	610	29	29
7	340	16	14	32	620	29	29
8	360	16	15	33	630	30	30
9	370	17	15	34	640	30	30
10	390	18	16	35	650	31	31
11	400	18	16	36	670	31	32
12	420	19	17	37	680	32	32
13	430	19	18	38	690	32	33
14	440	20	18	39	710	33	34
15	460	20	19	40	720	34	35
16	470	21	20	41	730	34	36
17	480	21	20	42	730	35	37
18	490	22	21	43	740	36	37
19	500	22	21	44	740	37	38
20	510	23	22	45	750	37	
21	520	23	23	46	750	38	
22	530	24	24	47	760	38	
23	540	24	24	48	760		
24	550	25	25				

### » Reading Pacing Gates

Consider the pacing gates for the Reading test on the PSAT.



If you are running behind your gate:

- **Read Less:** If you are short on time, you are likely spending too much time reading through the passage. Try reading only the first and last sentences of each paragraph and focus on the questions with line references.
- **Keep Moving:** If you are frequently running out of time on a passage, you should try exiting the questions more quickly. This is especially important for the more difficult questions.
- **Guess Intelligently:** In order to keep moving, you will need to make intelligent guesses. Spend time eliminating the worst choices and then make an educated guess before moving on.

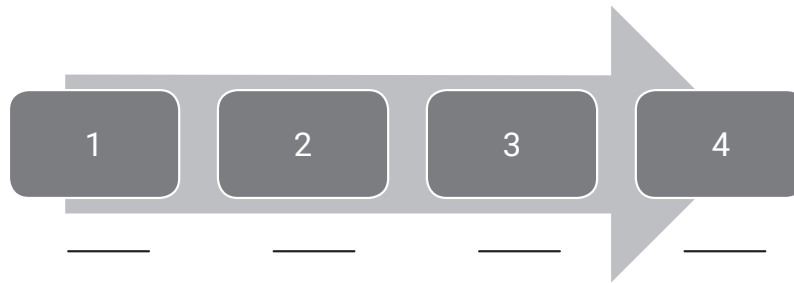
If you are running ahead of your gate:

- **Read More:** If you find yourself with additional time, you could benefit from reading a little more thoroughly. Instead of skimming, read each paragraph thoroughly.
- **Second Look:** Take the extra time to review all of your answers before moving on to the next passage.
- **Prove Everything:** Justify each answer you select by finding a specific line in the passage that supports it.



### » Writing and Language Pacing Gates

Consider the pacing gates for the Writing and Language test on the PSAT.



If you are running behind your gate:

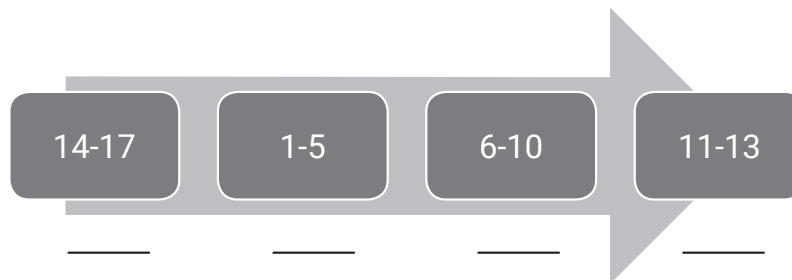
- **Keep Moving:** If you are spending too much time on the tougher questions, mark and move more frequently.
- **Guess Intelligently:** In order to keep moving, you will need to make intelligent guesses that are informed by what you can learn from the question and answer choices.

If you are running ahead of your gate:

- **Second Look:** Take the extra time to review all of your answers.
- **Eliminate More:** Eliminate every wrong answer choice before selecting the correct answer.

### » No Calculator Pacing Gates

Consider the pacing gates for the No Calculator section of the PSAT.



If you are running behind your gate:

- **Prioritize:** Only attempt the hard questions if you have time left over after attempting the easy questions.
- **Don't Get Stuck:** If you are getting stuck, be willing to mark and move more quickly.

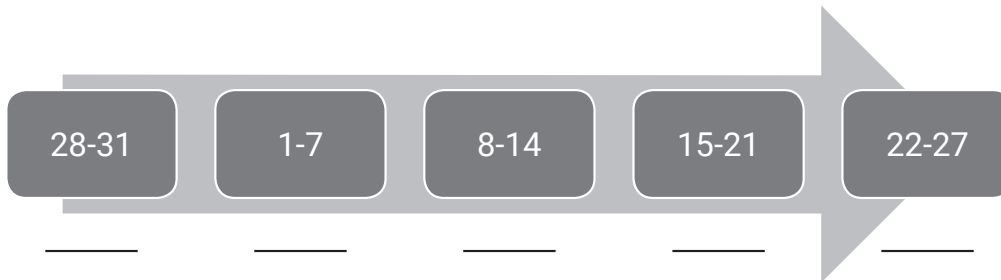
If you are running ahead of your gate:

- **Double-Check:** Take the extra time to check your work.
- **Show Your Work:** Make sure you are writing down all your steps and marking up the question.

⊛ SAT Overview ⊛

### » Calculator Pacing Gates

Consider the pacing gates for the Calculator section of the PSAT.



If you are running behind your gate:

- **Prioritize:** Only attempt the hard questions if you have time left over after attempting the easy questions.
- **Don't Get Stuck:** If you are getting stuck, be willing to mark and move more quickly.

If you are running ahead of your gate:

- **Double-Check:** Take the extra time to check your work.
- **Show Your Work:** Make sure you are writing down all your steps and marking up the question.

Want to learn more about what MasteryPrep can do for your school? Check out our other ACT and SAT test prep products and find the one that best suits your school's needs.

[Click here to download the full MasteryPrep Catalog!](#)



### Professional Development:

- Decoding the ACT
- Mastering the SAT

Comprehensive training where teachers become ACT and SAT experts. Integrate college readiness in the classroom with tips, strategies, and content insights.



### Practice Tests:

- TruScore ACT Practice Testing

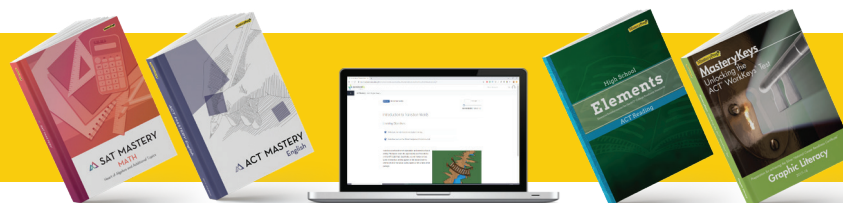
Deep insights into ACT performance with 24-hour turnaround. No-hassle, pencil and paper practice testing and analysis.



### Boot Camps:

- ACT Boot Camp
- SAT Boot Camp
- WorkKeys Boot Camp
- EOC Boot Camps
- TSI Assessment Boot Camp
- AccuPrep

Better scores in one day. Engaging experts help students become prepared and confident with time management and test-taking strategies.



### Curricula:

- ACT Mastery
- SAT Mastery
- ACT Essentials Online

The first and only mastery-based ACT and SAT curricula. Fit any schedule with zero teacher prep time.

- ACT Elements

Authentic daily reinforcement of ACT essential skills. Scaffolded approach builds confidence and competence.

- MasteryKeys

The most comprehensive and successful WorkKeys prep program for earning a Silver NCRC™.