

C H A P T E R

2



Preparing for SAT Math

► What to Expect

There are three Math sections on the SAT: two 25-minute sections and one 20-minute section. The Math sections contain two types of questions: five-choice and grid-ins.

► Five-Choice Questions

The **five-choice** questions, which are multiple-choice questions, present a question followed by five answer choices. You choose which answer choice you think is the best answer to the question. Questions test the following subject areas: numbers and operations (i.e., arithmetic), geometry, algebra and functions, statistics and data analysis, and probability. About 90% of the questions on the Math section are five-choice questions.

Here is an example:

1. By how much does the product of 13 and 20 exceed the product of 25 and 10?

- a. 1
- b. 5
- c. 10
- d. 15
- e. 20

1. (a) (b) ● (d) (e)

Five-choice questions test your mathematical reasoning skills. They require you to apply various math techniques for each problem.

► Grid-In Questions

Grid-in questions are also called *student-produced responses*. There are approximately ten grid-in questions on the entire exam. Grid-in questions do not provide you with answer choices. Instead, a grid-in question asks you to solve a math problem and then enter the correct answer on your answer sheet by filling in numbered ovals on a grid.

You can fill in whole numbers, fractions, and decimals on the grids. Examples follow.

Whole Numbers

If your answer is 257, fill in the number ovals marked 2, 5, and 7:

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

Fractions

If your answer is $\frac{4}{9}$, fill in the number ovals marked 4 and 9 and a fraction symbol (/) in between.

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

Note that all mixed numbers should be written as improper fractions. For example, $5\frac{3}{5}$ should be filled in as $\frac{28}{5}$.

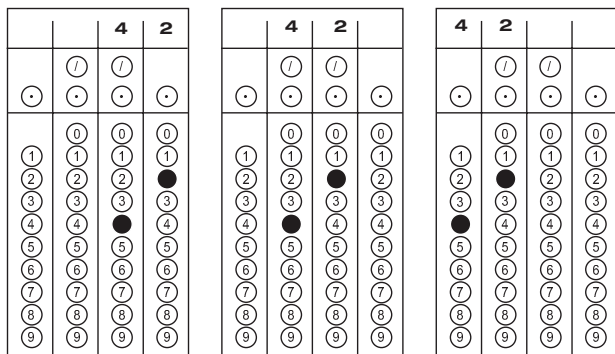
Decimals

If your answer is 3.06, fill in the number ovals marked 3, 0, and 6 with a decimal point in between the 3 and the 0.

3	.	0	6
	/	/	
•	●	•	•
(1)	(0)	●	(0)
(2)	(1)	(1)	(1)
(3)	(2)	(2)	(2)
(4)	(3)	(3)	(3)
(5)	(4)	(4)	(4)
(6)	(5)	(5)	(5)
(7)	(6)	(6)	●
(8)	(7)	(7)	(7)
(9)	(8)	(8)	(8)
	(9)	(9)	(9)

Using the Right Columns

The scoring machine gives you credit for your answer no matter which columns you use. For example, all three of these grids would be scored correct for the answer 42:



However, so that you don't confuse yourself, we recommend using the placement on the left. And be sure to leave unused grid columns blank.

Units

Grids do not have ovals for units, such as \$ or °, so do not write them in. If you need to write an answer that includes units, simply leave the units out. For example, you would fill in \$4.97 as 4.97 and 90° as 90.

Percents

If you determine an answer as a percent, such as 50%, do not fill in 50% on the grid. The grid does not have a percent symbol (%). Instead, convert all percents to fractions or decimals before filling in the grid. For example, 50% should be filled in as .50 or 1/2.

Ratios

The grid also does not have a ratio symbol (:). For grid-in items, write all ratios as fractions or decimals. For example, 1:4 or "1 to 4" should be filled in as 1/4 or .25.

Negative Numbers and Variables

You cannot mark a negative number or a variable on a grid. Therefore, if you solve a grid-in problem and determine an answer that includes a variable or a neg-

ative sign, you know your answer must be wrong! Solve it again!

Fill Those Ovals!

As you can see in the samples, there is space to write your answer in number form at the top of each grid above the ovals. However, grid-in questions are scored by machine, and the machines only read the ovals. SO YOU MUST FILL IN THE OVALS IN ORDER TO GET CREDIT! You actually don't even need to hand-write the answer at the top. But it's usually a good idea to write your answer before filling in the ovals so that you don't make an error.

Become Familiar with Grids!

Be sure you are very familiar with how to fill in a grid before you take the real SAT. You don't want to waste any test time trying to figure out how to fill in the grids.

► How to Prepare

Use the following strategies to maximize the effectiveness of your SAT preparation.

Take the Time

The more time you can spend preparing for the SAT, the better prepared you will be. However, you don't need to spend several hours at once to study well. Between now and test day, dedicate one or two hours a day to using this book. You'll be surprised at how much you can accomplish. Spending an hour a day over a few months will be much more beneficial than spending five hours a day during the week before the exam.

Don't Cram

Just as you don't train to run a marathon by waiting until the last minute and then running twenty miles a day for five days before the race, you cannot prepare most effectively for the SAT by waiting until the last

SAT Math at a Glance

Math Sections

- two 25-minute sections
- one 20-minute math section
- total of 70 minutes for math sections

Math Questions

- 90% are multiple-choice questions; you must choose an answer from five answer choices
- about ten questions are grid-in questions; you must determine the answer without answer choices

Math Concepts Tested

- numbers and operations (i.e., arithmetic)
- geometry
- algebra and functions
- statistics and data analysis
- probability

minute to study. Your brain works best when you give it a relatively small chunk of information, let it rest and process, and then give it another small chunk.

Stay Focused

During your study time, keep the TV and various computer programs (such as AIM) off, don't answer the phone, and stay focused on your work. Don't give yourself the opportunity to be distracted.

Find the Right Time and Place

Some times of the day may be better times for you to study than others. Some places may be more conducive to good studying than others. Choose a time to study when you are alert and can concentrate easily. Choose a place to study where you can be comfortable and where there aren't any distractions. Ideally, you should choose the perfect time and place and use them every day. Get into a routine, and you'll find that studying for the SAT will be no different than taking a shower or eating dinner.

Because the SAT is given early on Saturday mornings, you may want to spend some of your study time early in the morning—especially in the weeks leading up to the test—so you can accustom yourself to thinking about SAT questions at that time of day. Even better would be to dedicate several of the Saturday mornings before the test to SAT preparation. Get yourself used to walking up early on Saturdays and working on the SAT. Then, when test day arrives, getting up early and concentrating on SAT questions will seem like no big deal.

Reward Yourself

Studying is hard work. That's why studying is so beneficial. One way you can help yourself stay motivated to study is to set up a system of rewards. For example, if you keep your commitment to study for an hour in the afternoon, reward yourself afterward, perhaps with a glass of lemonade or the time to read a magazine. If you stay on track all week, reward yourself with a movie with friends or something else you enjoy. The point is

to keep yourself dedicated to your work without letting the SAT become all you think about. Remember: If you put in the hard work, you'll enjoy your relaxation time even more.

Use Additional Study Sources

This book will give you a solid foundation of knowledge about the math sections of the SAT. However, you might also benefit from other LearningExpress books such as *Practical Math Success in 20 Minutes a Day* and *1001 Math Questions*.

Take Real Practice Tests

It is essential that you obtain the book *10 Real SATs*, published by The College Board. This book is the only source for actual retired SATs. Make sure you take at least one real retired SAT before test day. The more familiar you can become with the look and feel of a real SAT, the fewer surprises there will be on test day.

Memorize the Directions

The directions found on SATs are the same from test to test, so memorize the directions on the practice tests in the *10 Real SATs* book so you won't have to read the directions on test day. This will save you a lot of time. While some students will be reading through the directions, you can be working on the first question.

► How to Use This Book

You will need the following materials while working with this book:

- a notebook or legal pad dedicated to your SAT work
- pencils (and a pencil sharpener) or pens

- a four-function, scientific, or graphing calculator (Note: Calculators are not required for the SAT, but they are recommended, so you should practice using one when answering the questions in this book.)
- different-colored highlighters for highlighting important ideas
- paper clips or sticky note pads for marking pages you want to return to
- a calendar

you may, of course, use this book however you like. Perhaps you need only to study one area of math or want only to take the practice tests. However, for the best results from this book, follow this guide:

1. Take the pretest in Chapter 3. This is a short test with questions similar to those you will see on the SAT. This pretest will give you a flavor of the types of math questions the SAT includes. Don't worry if any of the questions confuse you. They are designed only to get your feet wet before you work through the rest of the book.
2. Work through Chapters 4–8. These chapters are the meat of the book and will give you techniques and strategies for answering SAT math questions successfully. They will also review the math skills and concepts you need to know for the SAT.
3. Take the practice tests in Chapters 9, 10, and 11. Make sure to read through the answers and explanations when you finish. Review your errors to determine if you need to study any parts of the book again.

