

## Math Test

The overall aim of the Math Test is to assess fluency with, understanding of, and ability to apply the mathematical concepts that are most strongly prerequisite for and useful across a wide range of college majors and careers.

The test rewards a stronger command of fewer important topics. Students need to exhibit command of mathematical practices, fluency with mathematical procedures, and conceptual understanding of mathematical ideas. The assessment also provides opportunities for richer applied problems.

The Math Test has a calculator portion and a no-calculator portion. In the calculator portion, students can use their calculators to perform routine computations more efficiently, enabling them to focus on mathematical applications and reasoning. However, the calculator is a tool that students must use strategically, deciding when and how to use it. There will be some questions in the calculator portion that can be answered more efficiently *without* a calculator. In these cases, students who make use of structure or their ability to reason will most likely reach the solution more rapidly than students who use a calculator.

**SAT MATH TEST CONTENT SPECIFICATIONS**

<b>Time Allotted</b>	<b>80 minutes</b>	
Calculator Portion	55 minutes	
No-Calculator Portion	25 minutes	
	<b>Number</b>	<b>Percentage of test</b>
<b>Total Items</b>	<b>58 questions</b>	<b>100%</b>
Multiple Choice (MC, 4 options)	45 questions	78%
Student-Produced Response (SPR — grid-in)	13 questions	22%
<b>Contribution of Items to Subscores</b>		
<b>Heart of Algebra</b>	<b>19 questions</b>	<b>33%</b>
Analyzing and fluently solving linear equations and systems of linear equations		
Creating linear equations and inequalities to represent relationships between quantities and to solve problems		
Understanding and using the relationship between linear equations and inequalities and their graphs to solve problems		
<b>Problem Solving and Data Analysis</b>	<b>17 questions</b>	<b>29%</b>
Creating and analyzing relationships using ratios, proportional relationships, percentages, and units		
Representing and analyzing quantitative data		
Finding and applying probabilities in context		
<b>Passport to Advanced Math</b>	<b>16 questions</b>	<b>28%</b>
Identifying and creating equivalent algebraic expressions		
Creating, analyzing, and fluently solving quadratic and other nonlinear equations		
Creating, using, and graphing exponential, quadratic, and other nonlinear functions		
<b>Additional Topics in Math</b>	<b>6 questions</b>	<b>10%</b>
Solving problems related to area and volume calculations in context		
Applying definitions and theorems related to lines, angles, triangles, and circles		
Working with right triangles, the unit circle, and trigonometric functions		

**General Instructional Strategies for Math:**

- Ensure that students practice solving multistep problems. Questions on assessments in the SAT Suite often ask them to solve more than one problem to arrive at the correct answer.
- Separate students into small working groups. Ask them to discuss how to arrive at solutions. When their solutions are incorrect, ask them to discuss how to make corrections. Encourage students to express quantitative relationships in meaningful words and sentences to support their arguments and conjectures.
- Vary the types of problems in homework assignments so that students aren't always using the same strategy to find solutions. Students benefit from the practice of determining the right mathematical strategy to solve the problems, in addition to solving the problems correctly.
- Assign students math problems or create classroom-based assessments that do not allow the use of a calculator. This practice encourages greater number sense, probes students' understanding of content on a conceptual level, and aligns to the testing format of the SAT Suite of Assessments.
- Develop interest and facility in math by practicing in science and social studies. Use tables, expressions, and graphs that students encounter in other content areas to present math as a tool that may be applied to many areas of study rather than being relegated to math classes. Provide frequent opportunities for students to interpret and apply mathematical skills and concepts in real-world contexts, particularly in the sciences and social studies.