



VALLALAR ACADEMY

Online Math Academy for Grades 6–12, SAT & AP Success

SAT Math – Comprehensive Syllabus

Digital SAT • Math Section

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SAT Math – Comprehensive Syllabus

1. Algebra and Linear Relationships

- Develop fluency in solving single- and multi-step linear equations and inequalities.
- Work with systems of linear equations and inequalities to find and interpret solutions.
- Analyze, graph, and interpret linear functions, including slope and rate of change in context.
- Translate real-world scenarios into linear models and interpret solutions in words.

2. Advanced Math

- Solve and interpret quadratic equations using factoring, completing the square, and the quadratic formula.
- Understand the behavior of quadratic functions, including vertex, intercepts, and transformations.
- Simplify and manipulate polynomial, rational, and radical expressions and equations.
- Model growth and decay situations using exponential functions and interpret parameters.
- Use function notation, compositions, and transformations to describe relationships between quantities.

3. Problem Solving & Data Analysis

- Apply ratios, proportions, and percentages to multi-step word problems.
- Interpret and compare data using tables, bar graphs, line graphs, and scatterplots.
- Use statistics concepts such as mean, median, range, and standard deviation (conceptual) to describe data.
- Work with two-way tables and probability to make and justify conclusions.
- Build and analyze mathematical models that represent real-world data situations.

4. Geometry and Trigonometry Basics

- Use properties of lines, angles, and triangles to find missing measures and prove relationships.
- Apply the Pythagorean theorem and its variants in coordinate and word problems.
- Calculate area, perimeter, and volume of common 2D and 3D shapes in applied contexts.
- Use coordinate geometry to find distance, midpoint, and slopes of segments and lines.

- Apply right-triangle trigonometry (sine, cosine, tangent) to solve basic modeling problems.

5. Mathematical Reasoning & Strategy

- Identify efficient approaches to complex problems and avoid unnecessary calculations.
- Recognize common SAT question patterns and choose appropriate solution strategies.
- Use elimination, estimation, and back-solving to quickly narrow down answer choices.
- Translate verbal descriptions into equations and inequalities to support reasoning.
- Reflect on errors to build more reliable problem-solving habits.

6. Calculator & Non-Calculator Skills

- Decide when the calculator is helpful and when it slows problem solving.
- Strengthen mental math through estimation, factoring, and simplification techniques.
- Practice simplifying expressions and solving equations accurately without a calculator.
- Avoid common calculation traps by checking reasonableness of answers.

7. Test Structure & Skills

- Understand how the Digital SAT adaptive modules work and how they impact scoring.
- Use the provided formula sheet effectively during the test.
- Manage time across sections and questions to complete each module confidently.
- Develop a personal pacing strategy that balances accuracy and speed.

8. Practice Integration

- Work through topic-wise practice sets that reinforce each major concept area.
- Take full-length, SAT-style adaptive mock tests under realistic timing conditions.
- Review performance reports to identify strengths, gaps, and trends over time.
- Follow a personalized improvement roadmap to steadily increase SAT Math scores.

Thank You

We appreciate your interest in Vallalar Academy and our SAT Math program. For more information, SAT coaching details, or additional learning resources, please visit www.vallalaracademy.com or contact us using the details on the cover page.