# SAT Math Objectives and Resources

Consult the Official SAT test specifications here (page 137) for more information:
https://collegereadiness.collegeboard.org/pdf/test-specifications-redesigned-sat-1.pdf

SAT Math: Heart of Algebra
https://collegereadiness.collegeboard.org/pdf/official-sat-study-guide-ch-19-heart-algebra.pdf

SAT Math: Problem Solving and Data Analysis
https://collegereadiness.collegeboard.org/pdf/official-sat-study-guide-ch-20-problem-solving-data-analysis.pdf

SAT Math: Passport to Advanced Math
https://collegereadiness.collegeboard.org/pdf/official-sat-study-guide-ch-21-passport-advanced-math.pdf

SAT Math: Additional Topics in Math
https://collegereadiness.collegeboard.org/pdf/official-sat-study-guide-ch-22-additional-topics-math.pdf

| SAT Objective | Learning Resource | Practice Resource | Tips |
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| Analyzing and solving linear equations | https://www.mathsisfun.com/algebra/linear-equations.html | http://www.mathopolis.com/questions/q.php?id=519&site=1&ref=/algebra/linear-equations.html&qs=519_2074_1158_2075_520_1159_2455_2456_2457_2458 | Stick to the format y = mx+b<br><br>Y= y value<br>X = x value<br>M = slope<br>B = y-intercept (were the line touches the y-axis) |
| Analyzing and solving systems of linear equations | https://www.mathsisfun.com/algebra/systems-linear-equations.html | http://www.mathopolis.com/questions/q.php?id=591&site=1&ref=/algebra/systems-linear-equations.html&qs=591_592_593_594_1240_61_1241_2863_8157_8158 | Remember that in a system, there is a point at which the x and y value of each equation are the same, meaning you can set them equal! |
| Creating inequalities to represent relationships between | http://www.algebra-class.com/solving-word-problems-in-algebra.html | http://www.algebra-class.com/solving-word-problems-in-algebra-practice.html | Inequalities are solved just the same as regular equations, **EXCEPT** when dividing by a |

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| quantities and solve problems | | | negative, you must flip the sign. |
| Creating linear equations to solve problems | https://www.varsitytutors.com/hotmath/hotmath_help/topics/writing-systems-of-linear-equations-from-word-problems | http://www.algebralab.org/practice/practice.aspx?file=Word_LinearEquations.xml | Remember! Y= y value X= x value M= slope B= y-intercept |
| Understanding and using relationships between linear equations and their graphs to solve problems | http://www.mathsteacher.com.au/year8/ch15_graphs/04_plot/graphs.htm | https://www.khanacademy.org/math/algebra/linear-word-problems/interpreting-linear-functions/e/interpreting-linear-graphs | When comparing an equation to a graph pay special attention to m (slope) and b (y-intercept) |
| Understanding and using relationships between inequalities and their graphs to solve problems | https://www.wyzant.com/resources/lessons/math/algebra/inequalities | https://www.ixl.com/math/algebra-1/graph-inequalities | Remember that an open circle means just less than or greater than, a closed circle means less than or equal to or greater than or equal to. |
| Creating and Analyzing relationships using ratios, proportional relationships, percentages, and units | https://brilliant.org/wiki/sat-ratios-proportions-percents/  *Explanation and practice questions available here | | |
| Representing and analyzing quantitative data | https://prezi.com/ikyvb716wtqb/analyzing-and-interpreting-tables-graphs-and-charts/ | https://mathbitsnotebook.com/Algebra1/StatisticsData/STGraphPractice.html | |
| Finding and applying probabilities in context | https://www.utdallas.edu/~scniu/OPRE-6301/documents/Probability.pdf | http://www.theonlinetestcentre.com/probability.html | |
| Identifying and creating equivalent algebraic expressions | http://www.icoachmath.com/math_dictionary/equivalent_expression.html | https://maisonetmath.com/algebra/algebra-quizzes/12-matching-equivalent-expressions | |

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| Creating, analyzing, and solving quadratic and nonlinear equations | https://www.montereyinstitute.org/courses/Algebra1/COURSE_TEXT_RESOURCE/U03_L2_T5_text_final.html | http://www.mathscore.com/math/practice/Nonlinear%20Functions/ | |
| Graphing exponential, quadratic, and other nonlinear functions | http://math.tutorvista.com/calculus/nonlinear-function.html | http://worksheets.tutorvista.com/graphing-nonlinear-functions-worksheet.html | |
| Solving problems with area and volume | http://math2.org/math/geometry/areasvols.htm | http://www.mathscore.com/math/practice/Area%20And%20Volume%20Proportions/ <br> *These are a little complex, but these are the types of problems you will see on the SAT | |
| Applying definitions and theorems to lines | http://www.dummies.com/education/math/geometry/definitions-and-theorems-of-parallel-lines/ | https://mathbitsnotebook.com/termsofuseN.html | |
| Applying definitions and theorems to angles | https://www.wyzant.com/resources/lessons/math/geometry/lines_and_angles/angle_theorems | http://www.absorblearning.com/mathematics/demo/units/KCA003.html#Namingangles | |
| Applying definitions and theorems to triangles | http://www.mathopenref.com/triangle.html <br> *more links about triangles at bottom | http://blog.prepscholar.com/triangles-on-the-sat-geometry-strategies-and-practice-problems <br> *Scroll to blue boxes for practice problems | |
| Applying definitions and theorems to circles | https://www.mathsisfun.com/geometry/circle.html | http://www.mathopolis.com/questions/q.php?id=765&site=1&ref=/geometry/circle.html&qs=765_766_767_768_769_1764_3232_3233_3234_3235 | |
| Working with right triangles | https://www.mathsisfun.com/right_angle_triangle.html | http://www.mathopolis.com/questions/q.php?id=6701&site=1&ref=/right_angle_triangle.html&qs=6701_6707_761_1800_762_1801_3228_3229_8997_8998 | |

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| Working with the unit circle | https://www.mathsisfun.com/geometry/unit-circle.html | http://www.mathopolis.com/questions/q.php?id=7708&site=1&ref=/geometry/unit-circle.html&qs=7708_7709_7710_7711_8903_8904_8906_8907_8905_8908 | |
| Working with trigonometric functions | http://math2.org/math/algebra/functions/trig/ | https://www.google.com/search?q=trigonometric+functions+questions&oq=trigonometric+functions+questions&aqs=chrome.69i57j0l5.5776j0j4&sourceid=chrome&ie=UTF-8#q=trigonometric+functions+example+problems&start=10 | |

**KEY:**
- Heart of Algebra
- Problem Solving and Data Analysis
- Passport to Advanced Math
- Additional Topics in Math


**For full length SAT practice tests visit:**
**https://collegereadiness.collegeboard.org/sat/practice/full-length-practice-tests**

**For SAT practice questions visit:**

**https://www.khanacademy.org/sat**
- **You'll have to make an account, but it's quick, easy, and personalized**

**https://www.varsitytutors.com/sat-practice-tests**

**SAT Math Flashcards:**
**https://www.varsitytutors.com/sat_math-flashcards**