# SAT® Math Test
# Curriculum Review Worksheets

## Introduction

Curriculum Review Worksheets are designed to help you

- understand many of the skills and knowledge that are assessed on the SAT Suite of Assessments Math Tests;
- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The curriculum review worksheets consist of a set of tables addressing most of the skills and knowledge assessed on the SAT Suite Math Tests. Each table includes description of a skill or knowledge and provides a structure to guide you as you evaluate the place of that skill or knowledge in your curriculum.

To use these worksheets, please review the following resources:

- K-12 Score Reporting Portal data
- District/school curriculum maps
  Released SAT practice tests
- *Skills Insight for the SAT Suite* (https://collegereadiness.collegeboard.org/pdf/skills-insight-sat-suite.pdf)
- *The College and Career Readiness Benchmarks for the SAT Suite of Assessments* (https://collegereadiness.collegeboard.org/pdf/educator-benchmark-brief.pdf)

Each knowledge/skills table includes the following elements:

1. The name and definition of the skill or knowledge (or knowledge/skills area)
2. Questions guiding you to consider the place of the skill or knowledge in your curriculum
3. An indication of which SAT Suite subscore(s) the skill or knowledge is associated with
   *Definitions of the subscores appear below.*
4. A series of statements describing the ways in and extent to which students scoring in various score ranges on the Math Test (e.g., 20–24) are typically able to demonstrate attainment of the skill or knowledge, and spaces where you can indicate which of these statements best reflects your students' general level of attainment

The statements in the tables are taken from *Skills Insight for the SAT*, linked to above. The Skills Insight describes typical performance of students scoring in various score ranges on the Math Tests (and other SAT Suite tests). The Skills Insight statements are generalizations based on analysis of hundreds of test questions and on the performance data of thousands of students taking one of the SAT Suite assessments. In a few cases, identified in this set of worksheets by dark gray bands, student performance has to date been too inconsistent to allow for valid generalizations.

In each table, a light gray band signals that the 30–34 score range contains the college and career readiness test-level benchmark (31.5 for the SAT Math Test). More information about the benchmark, as well as benchmarks by grade for grades 8 through 11, can be found in *The College and Career Readiness Benchmarks for the SAT Suite of Assessments*, also linked above.

*Subscores*

The set of tables in this document includes abbreviations for the three subscores associated with the SAT Suite Math Tests. Subscores identify areas of concentration on the tests and consequently have potential instructional value.

The three subscores associated with the Math Tests are as follows:

- Heart of Algebra (HOA): Questions that assess students' ability to analyze, fluently solve, and create linear equations and inequalities. Students will also be expected to analyze and fluently solve equations and systems of equations using multiple techniques.
- Problem Solving and Data Analysis (PSD): Questions that focus on quantities and their units, proportional relationships, percentages, univariate and bivariate data analysis, probability, and core concepts of statistics.
- Passport to Advanced Math (PAM): Questions that focus on the structure of expressions and the ability to analyze, manipulate, and rewrite these expressions. Students will also be expected to analyze, fluently solve, and create non-linear equations.
- Note that some Math Test questions do not contribute to any subscore. This is not to suggest that those questions and the skills and knowledge they assess are unimportant; rather, those questions focus on other skills and knowledge important to college and career readiness.

The College Board decided to focus on these subscores based on the best available evidence about essential college and career readiness and success requirements.

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SAT Math Test Academic Skills and Knowledge
This area focuses on **percentages**.

**Content Description:** The student will:

1. Use percentages to solve problems in a variety of contexts. Examples include, but are not limited to, discounts, interest, taxes, tips, and percent increases and decreases for many different quantities.
2. Understand and use the relationship between percent change and growth factor (5% and 1.05, for example); include percentages greater than or equal to 100%.

| Is this set of knowledge/skills **explicitly** taught in your curriculum? | | | Yes | No |
|---|---|---|---|---|
| Identify which score range represents your students' highest level of proficiency. | | | Use this column to note which course(s)/grade level(s) this set of knowledge/skills is explicitly taught. | |
| Score range | Sub-score | Knowledge/skills | In which course are students expected to demonstrate proficiency? | |
| Below the 20–24 level | | | | |
| 20–24 | PSD | Solve problems that involve percentages | | |
| 25–29 | PSD | Solve multistep problems using percentages | | |
| 30–34 | PSD | Solve multistep problems involving interpretation of a constant rate of change associated with a percent increase or a percent decrease | | |
| 35–40 | PSD | *Students scoring in this range consistently demonstrate attainment of these content descriptions* | | |
| Above the 35–40 level | | | | |

Notes

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SAT Math Test Academic Skills and Knowledge
This area focuses on **one-variable data: distributions and measures of center and spread**.

**Content Description:** The student will:

1. Choose an appropriate graphical representation for a given data set.
2. Interpret information from a given representation of data in context.
3. Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and boxplots.
4. For quantitative variables, calculate, compare, and interpret mean, median, and range. Interpret (but don't calculate) standard deviation.
5. Compare distributions using measures of center and spread, including distributions with different means and the same standard deviations and ones with the same mean and different standard deviations.
6. Understand and describe the effect of outliers on mean and median.
7. Given an appropriate data set, calculate the mean.

| Is this set of knowledge/skills **explicitly** taught in your curriculum? | | | Yes | No |
|---|---|---|---|---|
| Identify which score range represents your students' highest level of proficiency. | | | Use this column to note which course(s)/grade level(s) this set of knowledge/skills is explicitly taught. | |
| Score range | Sub-score | Knowledge/skills | In which course are students expected to demonstrate proficiency? | |
| Below the 25–29 level | | | | |
| 20–24 | HOA | *Students scoring in this range are not able to demonstrate consistent attainment of these content descriptions* | | |
| 25–29 | HOA | Calculate mean, median, or range for a set of data presented in various ways | | |
| 30–34 | HOA | For a set of data, calculate, compare, and interpret mean, median, or range in context | | |
| 35–40 | HOA | Find how the mean, median, and range of data are affected by a change in the data set<br>Find the median of data from a frequency table<br>Compare measures of center and spread of two data distributions represented visually | | |
| Above the 35–40 level | | | | |
| Notes | | | | |

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SAT Math Test Academic Skills and Knowledge
This area focuses on **two-variable data: models and scatterplots**.

**Content Description:** The student will:

1. Using a model that fits the data in a scatterplot, compare values predicted by the model to values given in the data set.
2. Interpret the slope and intercepts of the line of best fit in context.
3. Given a relationship between two quantities, read and interpret graphs and tables modeling the relationship.
4. Analyze and interpret data represented in a scatterplot or line graph; fit linear, quadratic, and exponential models.
5. Select a graph that represents a context, identify a value on a graph, or interpret information on the graph.
6. For a given function type (linear, quadratic, exponential), choose the function of that type that best fits given data.
7. Compare linear and exponential growth.
8. Estimate the line of best fit for a given scatterplot; use the line to make predictions.

| Is this set of knowledge/skills **explicitly** taught in your curriculum? | | Yes | No |
|---|---|---|---|
| Identify which score range represents your students' highest level of proficiency. | | Use this column to note which course(s)/grade level(s) this set of knowledge/skills is explicitly taught. | |
| Score range | Sub-score | Knowledge/skills | In which course are students expected to demonstrate proficiency? |
| Below the 15–19 level | | | |
| 15–19 | PSD | Read information presented in simple tables of simple graphs | |
| 20–24 | PSD | Read and interpret contextual information presented in a graph or table<br>Identify the shape of a graph from a verbal description of some of its points<br>Use information about a directly proportional relationship to describe the graph of the relationship | |

| | | | |
|---|---|---|---|
| 25–29 | PSD | Interpret the association shown by a scatterplot and, when applicable, use a line of best fit to make prediction<br>Identify a graph of a nonlinear relationship between two variables based on a verbal description<br>Evaluate a conclusion about information presented in a graph<br>Recognize common characteristics of linear or exponential models based on a verbal description of a situation | |
| 30–34 | PSD | Analyze data presented in a scatterplot and draw conclusions from the trend shown<br>Identify the equation of a line that best fits the data in a scatterplot<br>Identify an appropriate inference or conclusion based on information from a graph or table<br>Distinguish between linear and exponential models from information provided verbally or in tables | |
| 35–40 | PSD | Analyze complex data displays<br>Analyze graphs of nonlinear relationships between two quantities, including relationships that are not represented by a linear, quadratic, or exponential equation<br>Use scatterplots to make predictions | |
| Above the 35–40 level | | | |
| Notes | | | |