

SAT Study Guide

185+ High-Yield Terms & Concepts for the Digital SAT

TemplateForge

Copyright (c) 2026 TemplateForge. All rights reserved.

This material is for personal study use. No part of this book may be reproduced or distributed without written permission from the publisher.

This guide is an independent study aid and is not affiliated with or endorsed by any certifying board or licensing authority. Always verify current exam requirements with your official source.

Contents

SAT Study Guide

185+ High-Yield Terms & Concepts for the Digital SAT

How to Use This Guide

Exam Overview: The Digital SAT

Section 1: Reading & Writing - Craft & Structure (20 Concepts)

Section 2: Reading & Writing - Information & Ideas (16 Concepts)

Section 3: Reading & Writing - Standard English Conventions (18 Concepts)

Section 4: Reading & Writing - Expression of Ideas (12 Concepts)

Section 5: Math - Algebra (24 Concepts)

Section 6: Math - Advanced Math (22 Concepts)

Section 7: Math - Problem-Solving & Data Analysis (22 Concepts)

Section 8: Math - Geometry & Trigonometry (22 Concepts)

Section 9: Digital SAT Format, Tools & Adaptive Logic (16 Concepts)

Section 10: Test-Day Strategy & Pacing (18 Concepts)

Final Review: 48-Hour Rapid Review

Test-Day Blueprint: The 10-Point Checklist

SAT Study Guide

185+ High-Yield Terms & Concepts for the Digital SAT

Price: \$19 | Format: Markdown + PDF Workbook

Category: College Admissions / SAT Test Prep

Design: Deep slate blue + digital blue

Important Disclaimer: This guide is an independent study aid. It is NOT affiliated with, endorsed by, or sponsored by the test administrator or any licensing/certifying body. Exam formats, content, and passing standards change over time, so always verify current requirements and official study materials with the authoritative source before test day.

How to Use This Guide

The SAT is a college admissions test scored on a 400-1600 scale. It is now fully DIGITAL (in the US since spring 2024): about 2 hours 14 minutes, 98 questions, adaptive modules, and a built-in calculator - closer to a sprint than the old paper marathon. This guide organizes the high-yield terms and concepts tested across both sections - Reading & Writing and Math - plus an overview of the adaptive format, a final review, and a test-day strategy. Work through the sections in order; each concept gives you key facts, a high-yield SAT tip, and where useful an example.

Exam Overview: The Digital SAT

The SAT is now fully digital in the US (paper ended December 2023; digital launched in spring 2024). Total time is about 2 hours 14 minutes across two sections: Reading & Writing (54 questions / 64 minutes, two modules of 27 questions, 32 minutes each) and Math (44 questions / 70 minutes, two modules of 22 questions, 35 minutes each). There is no separate science section - science reasoning still appears, folded into the data-analysis content of Reading & Writing and Math - and the essay is discontinued nationally.

Adaptive format: Module 1 of each section is the same for every test taker. Your Module 2 is then selected by the algorithm based on how you did on Module 1 - reach the harder Module 2 and you have a higher score ceiling. You cannot move backward between modules, so do your best on Module 1 and use the whole module: every question counts twice (once for your score, once for the difficulty you unlock).

Question toolkit: multiple-choice questions have FOUR answer choices. Reading & Writing questions are mostly short reading passages (about 25-150 words) with one question per passage and one question shown on screen at a time. Math includes about 22% student-produced (grid-in) responses and allows a calculator THROUGHOUT - the built-in Desmos graphing calculator plus any approved handheld you bring. Flag and highlight tools let you annotate and return to questions within a module.

Scoring: total 400-1600, made of Reading & Writing (200-800) plus Math (200-800), both scaled from the adaptive IRT scoring model. There is NO wrong-answer penalty - answer every single question, even a blind guess. Scores release in DAYS (not weeks). Many colleges superscore across test dates, so check each school's policy before deciding whether to retake.

Section 1: Reading & Writing - Craft & Structure (20 Concepts)

Vocabulary, purpose, evidence, and structure questions. Passages are short (25-150 words); every answer must be supported by the text on screen.

#	Term	Key Facts	SAT Tip	Example
1	Words in Context	The SAT asks you to choose the word or phrase that best fits the author's exact meaning in context - not the dictionary definition alone. Read the sentence and the sentences around it.	Substitute each answer choice into the sentence and read the whole sentence aloud in your head. Only the choice that keeps the tone AND the precise meaning works.	In 'the findings were (debatable/conclusive)', the adjoining evidence decides: if the study was well controlled, 'conclusive'.
2	Connotation & Tone	Connotation is the emotional or associative weight a word carries beyond its denotation (literal meaning). 'Slim', 'thin', and 'scrawny' denote similar size but differ sharply in tone.	Ask: does the author approve, disapprove, or stay neutral? Match the answer to that attitude.	'Cheap' vs 'inexpensive' - 'inexpensive' is neutral-positive, 'cheap' can imply low quality.
3	Main Idea / Central Claim	The central claim is the single idea the whole passage supports. Supporting details, examples, and evidence all point back to it.	The correct summary is the one that covers the WHOLE passage - an option that only covers one paragraph is a detail trap.	A passage about recycling rates ending with policy recommendation supports the claim that current recycling policy is underperforming.
4	Supporting Details	Details are the specific facts, examples, and data an author uses to build the central claim. The SAT asks which detail most		

directly supports
a stated
conclusion.

Match the detail
to the claim
term-by-term: if
the claim
mentions a
specific group,
year, or direction
of change, the

right detail
mirrors it.

To support 'sales
fell after the price
rise', you need
data showing
sales dropping
AFTER the price
changed, not
before.

5	Author's Purpose & Perspective	Purpose = why the passage exists (inform, persuade, entertain, critique). Perspective = the author's stance or point of view on the topic.	Purpose answers 'what does the author want the reader to take away?'; perspective answers 'where does the author stand?'.	A passage praising electric trucks while noting grid limits has the purpose 'inform about a transition' and a cautiously favorable perspective.
6	Point of View (Narrative)	Narrative point of view identifies who tells the story: first person (I), second person (you), third person limited (he/she, one character's mind), third person omniscient (all minds).	Look for the pronouns and whose inner thoughts you can access - that defines the POV this passage uses.	'I had always feared the water' = first person; the reader is inside the narrator's mind.
7	Command of Evidence: Textual	These questions give a claim and ask WHICH text excerpt best supports it. The support must contain the specific fact, example, or statistic the claim depends on.	Skim for the option that names the same variables as the claim - general statements rarely support specific claims.	A claim about 'migratory timing shifting earlier' needs an excerpt with actual earlier dates in it.
8	Command of Evidence: Quantitative	Like the textual evidence questions, but the evidence lives in a graphic - table, chart, graph. The data must directly match the claim's subject and direction.	Read the claim, then check the axis labels and the specific rows/columns that match it. Never answer from memory of the text - the data is the evidence.	A claim that 'species A outnumbered B in warm months' needs the chart rows for those months showing A greater than B.
9	Inference: Supported by Text	An inference is a conclusion NECESSARILY or MOST logically drawn from the text - not a guess, and		

not common
knowledge. The
right answer
follows from
stated evidence.

The correct
inference uses
only information
in the passage
plus one safe
step of logic. If
an option needs

outside facts, it is wrong.

If the text says a town's aquifer 'has not been recharged since 2005', you can safely infer the town's water

supply depends
on a finite
source.

10	Inference: Most Logical Conclusion	A variant that asks which statement is the most logical
----	--	--

conclusion from
a passage or
experiment
description - a
direct logical
extension of the
data.

The strongest
conclusion stays
within the tested
range and the

stated scope.
Avoid
conclusions that
overgeneralize to
new groups or
causes.

Results showing
a drug helps only
mice allow the
conclusion 'the

drug affects
mice', not 'the
drug cures
human disease'.

11	Function of a Phrase	Questions ask what a specific word or phrase is DOING in the sentence: qualifying a claim, providing context, conceding a point, introducing contrast, etc.	Look at the words around the phrase - the job it does is defined by its neighbors' logic.	'Although cheaper, the plan is riskier' - 'Although' functions to concede a point before the main contrast.
12	Function of a Sentence	Identify what a sentence accomplishes in its paragraph: introduces the topic, gives an example, offers a counterargument, summarizes, or transitions.	Read the sentence before and after the target to name the relationship they create.	A sentence that begins 'For instance' in a paragraph of claims is functioning as an example.
13	Passage Structure & Organization	How the passage is built: problem-solution, cause-effect, chronological, compare-contrast, claim-evidence, question-answer. Structure questions ask how the parts relate.	The structure is usually visible in the first and last sentences and the transitions between paragraphs.	A passage that poses 'why do bees dance?' then answers it with three studies is a question-answer structure.
14	Rhetorical Effect of a Word	How a specific word choice affects the reader: creates a tone, emphasizes a point, softens a claim, distances the author, or makes the writing vivid.	The 'rhetorical effect' equals the word's job PLUS its emotional weight - combine both in your answer.	Calling a delay 'brief' (vs 'short') frames it as pleasant and negligible - a deliberate softener.
15	Fact vs Opinion	A fact is verifiable; an opinion is a judgment or preference. Passages blend both; questions		

ask you to
identify which
sentence states
an opinion.

Look for value
words (should,
best,
disappointing,
clearly) - those
signal opinion
even inside

factual writing.

'The city has
1.4M residents'
(fact) vs 'the city
is overcrowded'
(opinion).

16	Implied vs Stated Meaning	Stated meaning is on the page; implied meaning must be assembled from clues (diction, detail selection, order).	When a question says 'implies', the answer is the idea the author counts on you to construct - pick the most direct construction.	Listing only the benefits of a policy implies the author supports it without ever saying so.
17	Paraphrase & Summary	Choosing the answer that restates a sentence or paragraph in different words while keeping the exact meaning - the SAT rewords constantly.	The right paraphrase keeps every logical piece (subject, direction, scope) and changes only the vocabulary.	'The proposal was met with widespread skepticism' = 'many people doubted the proposal would work.'
18	Analogy & Extended Metaphor	Authors explain ideas by comparing them to something familiar; questions ask what the comparison reveals about the subject.	Map each element of the comparison to the subject: the vehicle (the thing compared to) illuminates the tenor (the subject).	Calling a startup 'a rocket at launch' emphasizes rapid acceleration and high risk.
19	Tone & Register	Register = the level of formality (colloquial, neutral, academic). Tone = the attitude. Both are signaled by word choice.	Match register to audience: academic writing avoids slang; a personal essay may use it. The correct answer fits the passage's register.	A scientific report about 'kids' and 'stuff' breaks register - it should say 'children' and 'substances'.
20	Authorial Bias & Assumption	Bias = leanings that shape emphasis; assumptions = unstated beliefs the argument depends on. Questions ask what the author takes for granted.	The assumption is the missing link between evidence and conclusion - if that link fails, the conclusion fails.	An argument that testing 'proves' native intelligence assumes the test measures intelligence, not preparation.

Section 2: Reading & Writing - Information & Ideas (16 Concepts)

Central ideas, details, cross-text connections, and the data-analysis questions. Answer strictly from the text and the graphics on screen.

#	Term	Key Facts	SAT Tip	Example
1	Central Ideas & Details	The 'big idea' question asks for the main point of the passage; the 'detail' question asks for a specific piece the passage states. Know the difference before you answer.	For a big-idea question, the right answer covers the whole passage; for a detail question, it restates a specific sentence.	A passage on electric grids: big idea = 'grids need modernization'; detail = 'cables are buried in conduit'.
2	Summarizing a Passage	A concise restatement of the passage's main point in your own head, then matched against options - the summary must cover all paragraphs' shared thrust.	If an option covers only the first paragraph, it summarizes a detail, not the passage.	'The passage traces how jazz moved from New Orleans clubs to global concert halls.'
3	Cross-Text Connections	Two short passages appear together; questions ask how the second responds to the first (agrees, challenges, extends, qualifies, or provides counter-evidence).	Name the relationship FIRST: strengthen, weaken, or reframe - then pick the option that matches that verb.	If Passage A argues for school uniforms and Passage B describes a district's mixed results, B challenges A with counter-evidence.
4	Comparing Arguments	Questions pair two arguments and ask which claim, assumption, or evidence they share - or where they diverge.	List one line of each argument; the shared element is what BOTH depend on or BOTH address.	Both passages might agree that cost is the main barrier while disagreeing about whether public funding should expand.

5	Underlined Text Purpose	The SAT underlines a sentence and asks why the author included it: to illustrate, to concede, to contrast, to provide context, to define a term.	The purpose is the role the sentence plays for the CLAIM, not what the sentence says.	A sentence defining 'photosynthesis' before the argument uses it = 'to provide context / define a key term'.
6	Cause & Effect Links	Trace which event caused which. The SAT asks which statement correctly identifies the causal relationship in a passage or study description.	Check direction: does the text say A caused B or B caused A? Correlations described in the text are not automatically causes.	'Heavy rainfall caused the landslide' - the text must say the rain came FIRST and triggered the slide.
7	Identify the Claim of an Author	Find the sentence that is the author's main assertion rather than evidence, background, or qualification.	The claim is the sentence the other sentences exist to support - usually stated once and then defended.	In 'Most experts agree X; however, the data suggest Y', the author's claim is Y - the data and the experts are support and setup.
8	Reason & Evidence Matching	Questions supply a type of reasoning (e.g., an analogy, a precedent, a statistic) and ask which option provides that kind of support for a claim.	Match the FORM of the evidence to the prompt: a precedent = a past similar case; a statistic = numerical data.	To support 'reading scores improve with daily practice', a precedent = 'last year's pilot school saw gains'.
9	Fill-in-the-Blank Inference	A sentence ends mid-claim and you choose the completion most strongly supported by the preceding text.	The completion must follow from the text ONLY - nothing the passage never said.	If studies show bees memorize flower locations, the completion 'bees rely on spatial memory' fits; 'bees see colors' does not.

10	Chart Reading: Trends	Identify the overall direction of data in a line or bar chart: increasing, decreasing, stable, cyclical, or a turning point.	Read the axis labels and the shape of the series. 'Trend' = the big direction, not any single point.	A line that climbs every year from 2015 to 2024 shows an increasing trend, even if it dips in one mid-year month.
11	Data Interpretation: Comparing Groups	Charts and tables compare two or more groups; questions ask which group is higher/lower, or how the groups differ, at a given point or overall.	Find the named groups' bars/rows first, then compare the relevant values - quote the numbers in your head before picking.	If Group A's bar is taller than Group B's in every year shown, A is consistently higher.
12	Data Sufficiency: Which Evidence	A variant of Command of Evidence for graphs: which statement about the graphic supports or undermines the claim?	The correct statement must be TRUE of the graphic AND relevant to the claim's direction. A true-but-irrelevant statement is wrong.	Claim 'temperatures rose after 2000' needs the graph's post-2000 points trending up, not a statement about other years.
13	Paraphrasing Statistics	Restating a statistic in plain language without changing the numbers, the units, or the comparison base.	Keep every number, unit, and the 'compared to what' - the trap is flipping the comparison base (e.g., 'twice as many A as B' vs 'B as A').	'Enrollment doubled from 500 to 1,000' = 'the number of students grew by 100% in that period.'
14	Main Idea of a Graph + Text	Questions combine a short paragraph and a graphic: the correct answer integrates both the passage's claim and what the data shows.	The answer must be true of BOTH the text and the graphic - if only one supports it, it is wrong.	Text says 'sales recovered'; graph shows the line rising again after a dip - the integrated answer names both.
15	Interpreting Scientific Text	Concise science passages describe a study or phenomenon;		

questions ask about the hypothesis, the procedure, or the conclusion - all stated in the passage.

Treat it like any other passage: the hypothesis is the claim, the

procedure is the evidence, the conclusion stays within the scope of what was measured.

A passage testing 'light vs dark germination' - the conclusion

may say
'darkness
increased
germination in
this sample' but
not 'all seeds
need darkness'.

16	Best Answer to a Research Question	Questions pose a research question and ask which option provides the best answer, or which additional information would answer it.	Match the question's variables to the information: to answer 'does X affect Y', you need data linking X and Y, not more about X alone.	For 'does screen time affect sleep?', the best answer cites a study linking screen hours to sleep duration.
----	------------------------------------	--	--	---

Section 3: Reading & Writing - Standard English Conventions (18 Concepts)

Boundaries and form/structure: the grammar the digital SAT actually tests - mostly sentence boundaries and the mechanics that make a sentence complete and correct.

#	Term	Key Facts	SAT Tip	Example
1	Boundaries: Fragments vs Complete Sentences	A complete sentence has a subject and a verb and can stand alone. Fragments are pieces punctuated as sentences (missing a subject, verb, or both; or starting with a subordinator with no main clause).	Every sentence you are given must be checked for subject + verb + independence. 'Because the train was late' is a fragment - it needs a main clause.	Fragment: 'Although she studied.' Fixed: 'Although she studied, she was still nervous.'
2	Boundaries: Run-Ons	Two independent clauses joined without punctuation (run-on) or with only a comma (comma splice).	Two full sentences need a period, semicolon, or comma + a coordinating conjunction. A comma alone never joins them.	'It rained, the game continued' -> add 'but': 'It rained, but the game continued.'
3	Boundaries: Combining Sentences	Choosing the correct way to join two sentences: coordinating conjunction, subordinator, semicolon, or period - the option must be grammatical AND keep the logical relationship.	Test each join by reading the result as one sentence; if it reads as two ideas with no connector, it is wrong.	'She was tired. She finished.' -> 'Although she was tired, she finished.'
4	Subject-Verb Agreement	The verb matches its subject in number. Ignore interrupting		

phrases
(prepositional
phrases,
clauses, 'as well
as' add-ons).

Cross out
everything
between subject
and verb; then
match. '-s' on the

verb = singular
subject.

'The box of
books (is/are)
heavy' -> 'box'
is the subject
-> 'is'.

5	Pronoun-Antecedent Agreement	A pronoun agrees with its antecedent in number, gender, and person. 'Each', 'everyone', 'anybody' are singular.	Words ending in -one, -body, or -thing are singular antecedents: 'Everyone brought his or her book' (or rewrite to avoid the issue).	Each of the girls brought (her/their) own lunch -> 'her'.
6	Pronoun Case	Subject pronouns (I, he, she, we, they, who) act; object pronouns (me, him, her, us, them, whom) receive. Use the case that fits the pronoun's job in its own clause.	Test by isolating the pronoun: 'John and (I/me) went' -> 'I went' works -> 'I'.	Between you and (I/me) -> 'me' (object of the preposition 'between').
7	Verb Tense & Aspect	Tense places action in time (past, present, future); aspect shows completion or ongoing-ness (simple, progressive, perfect). Keep tenses consistent unless time shifts.	Match the tense to time markers: 'last year' = past, 'now' = present, 'next year' = future. Only shift when the text signals a new time.	'She runs daily and (ran/run) every day last summer' -> 'ran'.
8	Modifier Placement	A modifier must be next to - or clearly attached to - the word it modifies. Dangling modifiers describe the wrong noun or none.	The noun right after a comma-introduced phrase must be the thing being described. 'Walking home, the rain started' -> fix: 'Walking home, I felt the rain start.'	Dangling: 'Running late, the bus was missed.' Fixed: 'Running late, she missed the bus.'
9	Parallel Structure	Items in a list or pair use the same grammatical form: all nouns, all gerunds, all infinitive phrases.		

Correct
parallelism keeps
'and/'or'
balanced.

If one list item starts with '-ing', they all should; if one is a 'to' phrase, they all should be.	'She enjoys hiking, biking, and (to swim/swimming)' -> 'swimming'.
--	---

10	Comma: Lists & Series	Commas separate three or more items in a list. The final comma before 'and' (Oxford comma) is acceptable and often required in test materials.	A two-item list takes no comma: 'apples and oranges'. Three items: 'apples, oranges, and pears'.	Correct: 'We packed tents, sleeping bags, and meals.'
11	Comma: Clauses & Introductions	A comma follows an introductory phrase or clause and separates two independent clauses when a conjunction is present. No comma between subject and verb.	If a sentence starts with 'After/Because/When/Although...', expect a comma at the end of that opener. Comma + and/but/so = two full sentences.	'After dinner, we walked. She was tired, so she rested.'
12	Semicolons & Colons	A semicolon joins two related independent clauses without a conjunction. A colon introduces a list, explanation, or quote after a complete sentence.	Both sides of a semicolon must be full sentences. A colon must follow a complete sentence - never a verb like 'is' or 'includes'.	'The plan was simple: work hard, sleep well.' 'She won; nobody was surprised.'
13	End Punctuation	Periods end statements; question marks end questions; exclamation marks show strong feeling (rare in academic writing).	If the sentence is a question structurally ('did', 'is', 'why'), it needs a question mark even without a question word.	'Did you see the results?' vs 'I saw the results.'
14	Apostrophes: Possessives	Apostrophes show possession: singular noun + 's ('the dog's toy'); plural ending in s + s' ('the students' books'); irregular plurals take 's ('the children's toys').	For a plural that already ends in s, the apostrophe goes AFTER the s. The possessive 'its' has NO apostrophe.	'The dogs' owner' (multiple dogs) vs 'the dog's owner' (one dog).

15	Apostrophes: Contractions	Contractions ('don't', 'it's', 'you're') drop letters and put an apostrophe in their place. Nobody, nothing, and similar words are never contracted.	'It's' = it is; 'its' = possessive. 'You're' = you are; 'your' = possessive. This pair resolves most apostrophe traps.	'It's raining, and its paw is wet.'
16	Noun & Determiner Agreement	Countable nouns (book/books) use a/an/one/two; uncountable nouns (information, furniture) take no plural and no 'a'. Match the determiner to the noun's countability.	'Information' and 'advice' are uncountable: 'some information', never 'an information' or 'informations'.	'She gave me (advice/advice)' -> 'advice' - it has no plural form.
17	Adjective vs Adverb	Adjectives modify nouns ('a quick reply'); adverbs modify verbs, adjectives, or other adverbs ('replied quickly'). Linking verbs (is, seems, feels) take adjectives.	After 'is/seems/feels/sounds' use an adjective ('The soup smells good'), not an adverb. After action verbs use an adverb ('She runs fast').	Wrong: 'She did good on the test.' Correct: 'She did well.'
18	Commonly Confused Words	Their/there/they're, its/it's, your/you're, whose/who's, affect/effect, then/than, to/too/two, lose/loose, principal/principle, beside/besides.	Learn the six pairs the SAT repeats: their/there/they're, its/it's, your/you're, whose/who's, affect/effect, then/than.	'Affect' is a verb (to influence); 'effect' is usually a noun (a result).

Section 4: Reading & Writing - Expression of Ideas (12 Concepts)

Transitions, rhetorical synthesis, concision, and precision: how to make the writing clearer and more effective - the 'style' half of the section.

#	Term	Key Facts	SAT Tip	Example
1	Transitions: Logical Relationship	Transition words signal the relationship between ideas: however/nevertheless (contrast), moreover/furthermore (add), therefore/thus (result), for example (illustrate), in conclusion (summarize), similarly (compare).	Name the relationship between the two sentences BEFORE picking the word: contrast, addition, result, example, sequence.	'The plan is costly. (However/Therefore), it will pay for itself' -&t; 'However' (contrast).
2	Transitions: Placement	Some questions test WHERE a transition word goes, or which sentence the transition belongs to - the word must sit at the boundary of the ideas it connects.	The transition belongs between the idea it contrasts-or-continues and the idea it introduces - read the sentence with the word in each candidate spot.	'The data were clear. (Nevertheless, the board delayed.)' - the contrast word pairs the clear data against the delay.
3	Rhetorical Synthesis: Combining Notes	A four-bullet 'notes' prompt (a student's research notes) asks which option blends the notes into ONE clear sentence without inventing facts.	Every true fact in the option must come from the notes; the option must include the key specifics and no fabrication or irrelevant detail.	Notes on a subway's opening year and ridership -&t; the best option states both: 'Opened in 1932, the line now carries 1.5M riders daily.'
4	Concision &t; Wordiness	Delete words that repeat an idea ('repeat again', 'at this point in time' = now). The shortest		

grammatical
option that keeps
the meaning is
usually right.

Cut redundant pairs (free gift, end result, personal opinion) and empty fillers (it should be noted that).	'She returned the book back' -> 'She returned the book.'
--	--

5	Precision of Wording	Choosing the most exact word for the context - the 'best revision' replaces a vague or wrong word with a precise one.	Ask 'does this word say exactly what the sentence means?' - vague words like 'stuff' or 'thing' are almost always wrong in revision questions.	'The experiment measured (satisfaction/feelings)' -> 'satisfaction' when the survey asked about satisfaction specifically.
6	Tone & Audience Fit	Match the writing to its audience: a formal report avoids slang and contractions; a blog post may use them. Revision questions ask which option fits the register.	Match register to context - 'kids' vs 'children', 'stuff' vs 'materials'. The SAT tests the same vocabulary in style questions.	In a museum caption, 'the vase is (totally awesome/a fine example of the period)' -> 'a fine example of the period'.
7	Repetition & Redundancy	Repeated words or ideas weaken writing. The SAT asks which revision removes an unnecessary repetition without losing meaning.	If a word appears twice close together, one of them is usually redundant - merge the sentences instead.	'The plan failed because it did not succeed' -> 'The plan failed.'
8	Revising for a Specific Goal	Questions give a goal ('make the sentence more vivid', 'make the argument more persuasive', 'clarify the main point') and ask which option best achieves it.	Test the option against the GOAL, not against 'is it grammatical?' - vivid = imagery, persuasive = appeal to evidence, clarify = explicit subject.	To make 'it was hot' vivid: 'The heat shimmered off the asphalt.'
9	Combining & Restructuring Sentences	Which option best combines two sentences into one clear, well-structured sentence - preserving meaning while improving flow.	The best combination subordinates the less important idea ('After ...', 'which ...'). Avoid comma splices and wordy connectors.	'She studied late. She passed.' -> 'Because she studied late, she passed.'
10	Emphasis: Rearranging for Effect	Which revision best emphasizes a particular idea - placing it at the		

sentence's
climax (often the
end) or turning it
into the subject.

The emphasized
idea typically
becomes the
main clause or

the final element;
stronger
placement =
more emphasis.

To emphasize
the rarity: 'Only
twice in the
century did the

comet appear'
(vs the neutral
word order).

11	Style	The passage keeps one voice; a revision question asks which option matches the surrounding style (formality, diction, sentence rhythm).	Match the option's words and formality to the neighboring sentences - no casual words in an academic passage.	In an academic passage, 'the results were (amazing/impressive)' -> 'impressive'.
	Consistency			
12	Editing to Preserve Meaning	The safe edit: the best revision improves clarity or concision WITHOUT changing the author's meaning, emphasis, or scope.	Eliminate options that soften, strengthen, or shift the claim; accuracy beats flashiness.	Original 'many residents oppose the plan'; wrong revision 'all residents oppose the plan' - it changes the scope.

Section 5: Math - Algebra (24 Concepts)

About 35% of the digital SAT Math section. Linear equations, linear functions, systems, and inequalities - the bread and butter that rewards fast, reliable mechanics.

#	Term	Key Facts	SAT Tip	Example
1	Linear Equations: One Variable	An equation like $3x + 5 = 20$. Solve by isolating the variable: undo addition/subtraction first, then multiplication/division.	Whatever you do to one side, do to the other. Move terms by adding/subtracting, and clear multiplication by dividing.	$3x + 5 = 20$ -> $3x = 15$ -> $x = 5$.
2	Linear Equations: Two Variables	Standard form $Ax + By = C$ and slope-intercept $y = mx + b$ both describe a line. Convert between them freely.	To find the slope from standard form, rewrite as $y = (-A/B)x + (C/B)$. The slope is $-A/B$.	$2x + 4y = 8$ -> $y = -0.5x + 2$: slope -0.5, y-intercept 2.
3	Slope & Rate of Change	Slope = rise/run = change in y / change in x. It is the constant rate of change of a linear relationship.	Slope formula $m = (y_2 - y_1)/(x_2 - x_1)$. A zero slope is flat; an undefined slope is vertical.	Through (1, 2) and (4, 8): $m = (8-2)/(4-1) = 6/3 = 2$.
4	Slope-Intercept Form	$y = mx + b$: m = slope, b = y-intercept (where the line crosses the y-axis). Master reading both from the equation.	Given $y = 3x - 7$, the line crosses the y-axis at -7 and rises 3 per 1 of x.	$y = -2x + 5$: slope -2, y-intercept 5.
5	x- & y-Intercepts	The y-intercept is where $x = 0$; the x-intercept is where $y = 0$. Graphically, where the line crosses each axis.	Set the other variable to zero and solve to find an intercept. The x-intercept is the solution of $Ax + B(0) = C$.	$3x + 6y = 12$: x-intercept (4, 0); y-intercept (0, 2).
6	Parallel & Perpendicular Lines	Parallel lines have equal slopes. Perpendicular lines have slopes		

that are negative
reciprocals (m
and $-1/m$).

Check slopes,
never
y-intercepts:
same slope =
parallel; product

of slopes = -1 =
perpendicular.

$y = 2x + 1$ and $y = 2x - 4$ are
parallel; $y = 2x + 1$ and $y = -0.5x$
are

perpendicular.

7	Systems of Linear Equations	Two equations, two unknowns. Solve by substitution (isolate one variable) or elimination (add/subtract to cancel a variable).	Elimination is fastest when coefficients line up; substitution when one equation is already solved for a variable.	$x + y = 10$; $x - y = 2$ -> add: $2x = 12$ -> $x = 6$, $y = 4$.
8	Number of Solutions	A system has ONE solution (lines intersect), NO solution (parallel lines, same slope different intercept), or INFINITE solutions (same line).	Compare slopes and intercepts: same slope + different intercept = no solution (contradiction); same line = infinite.	$y = 2x + 1$ and $y = 2x + 5$ have no solution - the slopes match, the intercepts do not.
9	Linear Inequalities	Inequalities solve like equations, BUT multiplying or dividing by a negative FLIPS the direction.	Remember the flip: $-2x \geq 6$ -> $x \leq -3$. Graph with an open circle (strict) or closed (inclusive) and shade the correct side.	$-3x + 6 \leq 12$ -> $-3x \leq 6$ -> $x \geq -2$ (flipped when dividing by -3).
10	Systems of Inequalities	A system of two inequalities graphs as an overlap region; the solution is the set of points satisfying both.	Test a point (0,0) if it is not on a boundary to see which side of each line to shade; the overlap is the answer.	$y \geq x - 1$ and $y \leq -x + 3$: the solution region is the overlap of the two half-planes.
11	Absolute Value: Basics	$\text{abs}(x)$ = distance from zero, never negative. $\text{abs}(x) = a$ means $x = a$ or $x = -a$ ($a \geq 0$).	Split into two cases and solve both; check for extraneous solutions on inequalities.	$\text{abs}(x - 3) = 5$ -> $x - 3 = 5$ or $x - 3 = -5$ -> $x = 8$ or $x = -2$.
12	Word Problems: Translating	'is' = =, 'of' = multiply, 'more than' = +, 'less than' = -, 'per' = divide, 'a number' = x . Write the equation		

BEFORE
solving.

Define the
variable with a
label; one
sentence = one
equation. Keep
units in mind.

'Twice a number
minus 5 is 9'
-> $2x - 5 = 9$
-> $x = 7$.

13	Proportions & Ratios	A ratio compares parts; a proportion sets two ratios equal ($a/b = c/d$) and solves by cross-multiplication ($a \times d = b \times c$).	Set up both sides with the SAME units in the same position; keep 'total = sum of parts' handy.	3 apples cost \$1.80, so 7 apples cost? $3/1.8 = 7/x$ -> $x = \$4.20$.
14	Unit Conversions & Rates	Rates combine units (miles/hour, dollars/pound). Convert by multiplying by a fraction equal to 1 (e.g., 60 min/1 hour).	Set up the conversion so the unwanted unit cancels; carry the units through the math.	60 mph for 90 min = $60 \times 1.5 = 90$ miles (minutes converted to hours).
15	Literal Equations	Solve an equation for a specific variable in terms of the others (e.g., solve $A = lw$ for w).	Treat the target variable as the only variable; the others act like numbers.	$d = rt$ -> solve for t : $t = d/r$.
16	Linear Functions: Notation	$f(x) = mx + b$ is the function form of a line. $f(3)$ means 'plug in 3 for x '.	Evaluate by substituting: $f(2) = 3(2) - 7 = -1$. Know that $f(a) = b$ means the point (a, b) is on the graph.	If $f(x) = 2x + 3$, $f(4) = 11$.
17	Function Value & Sets	The set of valid inputs is the domain; the set of outputs is the range. Linear functions have domain and range = all real numbers (unless context limits them).	In word problems, the domain is often restricted by reality (e.g., $x =$ number of items, so $x \geq 0$).	A rental costs 5 + $2x$ dollars for x days: domain $x = 0, 1, 2, \dots$ (whole days only).
18	Interpreting Slope in Context	In a word-problem function, the slope is the rate: dollars per hour, miles per gallon, items per week. It answers 'for every 1 unit of x , y changes by...'.	The slope's units are $(y\text{-units})/(x\text{-units})$. Read what those units are in the problem and say them out loud.	$y = 30x + 100$ (cost = $30x + 100$): slope 30 means each additional item costs \$30.

19	Interpreting y-Intercept in Context	The y-intercept is the value of y when $x = 0$: the starting amount, the fixed cost, the initial population.	Find where $x = 0$ in the story: 'before any time passes', 'with zero items', 'at the start'.	In $y = 30x + 100$, the 100 is the fixed setup fee charged before any items.
20	Linear Growth vs Constant Change	A linear relationship changes by the SAME amount over equal intervals (adds/subtracts a constant per step).	Constant difference per step = linear; constant ratio per step = exponential. Check two consecutive steps.	Population up 200 every year = linear; population up 5% every year = exponential.
21	Percent & Percent Change	Percent change = $(\text{new} - \text{original})/\text{original} \times 100\%$. The change is relative to the ORIGINAL value.	Sequential percent changes do NOT add: up 20% then down 20% = net -4%.	\$100 up 20% = \$120, then down 20% = \$96. Net change -4%.
22	Percent Word Problems	'What is 15% of 200?' = 0.15×200 . '12 is what percent of 80?' = $12/80 = 0.15 = 15\%$. Translate into a one-line calculation.	Convert percents to decimals before multiplying; the 'whole' is usually the noun after 'of'.	A \$40 item at 25% off: $40 \times 0.75 = \$30$.
23	Weighted Averages & Mixtures	Weighted average = $(\text{sum of each value} \times \text{its weight})/(\text{sum of weights})$. Mixture problems balance two parts to hit a target.	Total = parts added; the weighted average is total value / total quantity. Set up a table with columns for each part.	2 lb of \$3/lb nuts + 3 lb of \$5/lb nuts: total cost = $6 + 15 = 21$ over 5 lb -> \$4.20/lb.
24	Direct & Inverse Variation	Direct: $y = kx$ (y grows with x). Inverse: $y = k/x$ (y shrinks as x grows). Find k from one data point, then use it.	Identify which by the story: 'y is proportional to x' = direct; 'y varies inversely with x' = $y = k/x$.	If $y = kx$ and $y = 12$ when $x = 3$, then $k = 4$ and $y(7) = 28$.

Section 6: Math - Advanced Math (22 Concepts)

About 35% of the digital SAT Math section. Quadratics, higher-degree polynomials, exponentials, radicals, and function transformations - the 'harder half' of the section.

#	Term	Key Facts	SAT Tip	Example
1	Quadratic Expressions: Multiplying	FOIL (First, Outer, Inner, Last) multiplies two binomials: $(x + a)(x + b) = x^2 + (a + b)x + ab$.	Practice the shortcut: $(x + a)(x + b)$ -> middle term = sum of a and b, last term = product.	$(x + 3)(x - 5) = x^2 - 2x - 15$.
2	Factoring Quadratics	To factor $x^2 + bx + c$, find two numbers that multiply to c and add to b. Factor out a GCF first when there is one.	If you cannot factor quickly, use the quadratic formula. The SAT accepts equivalent expressions - factoring is about recognizing the pair.	$x^2 - 5x + 6 = (x - 2)(x - 3)$.
3	Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ for $ax^2 + bx + c = 0$. Works for every quadratic.	Memorize in pieces: numerator -b, then $\pm \sqrt{b^2 - 4ac}$, all over 2a.	$x^2 - 4x - 5 = 0$ -> $x = \frac{4 \pm \sqrt{16 + 20}}{2} = 5$ or -1 .
4	The Discriminant	The discriminant $b^2 - 4ac$ counts real roots: > 0 = two, $= 0$ = one (double), < 0 = no real roots.	Compute only $b^2 - 4ac$ to decide; you do not need the roots to answer a 'number of solutions' question.	$x^2 + 4$ has $b^2 - 4ac = -16$ < 0: no real solutions.
5	Vertex Form & Completing the Square	$y = a(x - h)^2 + k$ has vertex (h, k). Complete the square to convert standard form into vertex form.	The vertex x-coordinate is always $-b/(2a)$ - use this shortcut instead of completing the square.	$y = x^2 + 6x + 8$ -> vertex $x = -3$ -> $y = (x + 3)^2 - 1$.
6	Roots & Solutions of Quadratics	The roots (solutions, zeros) are the x-values where $y = 0$ - where the		

parabola crosses
the x-axis.

The vertex lies
midway between
the roots:
 $x_{\text{vertex}} = (r_1 + r_2)/2$. Use this to

check your work.

Roots 2 and 8
-> vertex $x = 5$.

7	Sum & Product of Roots	For $ax^2 + bx + c$: sum of roots = $-b/a$, product = c/a . Useful when the roots are not nice.	These formulas work even with irrational roots - get the sum/product without solving.	For $x^2 - 7x + 10$, sum = 7, product = 10 -> roots are 2 and 5.
8	Nonlinear Systems	A line and a parabola (or circle) intersect where they satisfy both equations: substitute the line into the quadratic and solve.	Substitution is the standard move; the quadratic may yield 0, 1, or 2 intersection points.	$y = x + 1$ and $y = x^2 - 1$ -> $x^2 - x - 1 = 0$ -> two intersection points.
9	Exponential Growth & Decay	$f(x) = a \times b^x$: a = initial value, b = growth factor ($b > 1$ growth, $0 < b < 1$ decay).	A growth factor of 1.20 means +20% per step; 0.90 means -10%. Convert to percent by $(b - 1) \times 100\%$.	\$100 invested at 5% compounded yearly: $f(t) = 100 \times 1.05^t$.
10	Interpreting the Base b	In exponential models, the base tells the per-period multiplier - the story's 'factor' per unit of time.	Read the problem for 'doubles' ($b = 2$), 'increases by 30%' ($b = 1.3$), 'decays by 8%' ($b = 0.92$).	A population 'triples every decade' -> model $P(t) = P_0 \times 3^{(t/10)}$.
11	Radicals & Rational Exponents	$\sqrt{x} = x^{(1/2)}$; the n th root = $x^{(1/n)}$. Combine with exponent rules: $(x^a)^b = x^{(ab)}$.	Convert radicals to fractional exponents to multiply/divide; keep track of domains (no negative inside an even root).	$\sqrt{16} = 16^{(1/2)} = 4$; $\sqrt{x^4} = x^2$ for $x \geq 0$.
12	Simplifying Polynomials	Combine like terms (same variable + same exponent); order terms by descending exponent.	Only add terms with identical variable parts: $3x^2 + 5x^2 = 8x^2$, but $3x^2 + 5x$ stays separate.	$3x^2 + 2x - x^2 + 5x = 2x^2 + 7x$.
13	Multiplying Polynomials	Distribute every term of one polynomial through the other - the expanded result times: $(x - 1)(x^2 + 2x + 1)$.	Track every cross term; count terms before combining to make sure none were dropped.	$(x - 1)(x^2 + 2x + 1) = x^3 + 2x^2 + x - x^2 - 2x - 1 = x^3 + x^2 - x - 1$.

14	Factoring by Grouping	For four-term polynomials, group pairs, factor each pair, then pull out the common binomial.	Works when pairs share a factor: $x^3 + 2x^2 + 3x + 6$ $\rightarrow x^2(x + 2) + 3(x + 2) = (x + 2)(x^2 + 3)$.	$x^3 + 2x^2 + 3x + 6 = (x + 2)(x^2 + 3)$.
15	Rational Expressions & Undefined Values	A fraction is undefined where the DENOMINATOR equals zero. Simplify rational expressions by canceling common factors.	Set the denominator to zero and solve - those x-values are excluded from the domain.	$(x^2 - 1)/(x - 1) = x + 1$ for $x \neq 1$ (undefined at $x = 1$).
16	Function Transformations: Translations	Shifts move the graph without changing its shape: $y = f(x) + k$ (up), $y = f(x) - k$ (down), $y = f(x - h)$ (right), $y = f(x + h)$ (left).	Inside the parentheses is BACKWARD: $y = f(x - 3)$ shifts RIGHT by 3. Outside shifts up/down on the y side.	$f(x) = x^2$ $\rightarrow$ $f(x - 2) + 1$ moves the vertex to (2, 1).
17	Function Transformations: Reflect & Scale	$y = -f(x)$ reflects across the x-axis; $y = f(-x)$ reflects across the y-axis. $y = a \times f(x)$ stretches ($a > 1$) or compresses ($0 < a < 1$) vertically.	A negative sign reflects; a multiplier scales. Combine in order on the 'outside-in' rule.	$y = -2(x - 1)^2$ reflects the parabola down and makes it twice as steep.
18	Equivalent Expressions	Two expressions are equivalent if they equal the same value for every input; the SAT asks which option is equivalent to the given expression.	Distribute, factor, combine - work until the given and the option match. Test $x = 0$ or $x = 1$ for a fast check.	$2(x + 3) + 4$ is equivalent to $2x + 10$.
19	Comparing Function Forms	The same relationship can be written as a table, a graph, a formula, or words; the SAT asks which form matches the		

story.

Extract the rate and the starting value from whichever form you are given, then match to the others.	A table showing +3 per step matches $y = 3x + 2$ only if the step 0 value is 2.
--	---

20	Absolute Value as a Function	$f(x) = \text{abs}(x - h) + k$ graphs as a V with vertex (h, k) ; the slope of each arm is ± 1 (or scaled).	The vertex sits where the inside equals zero: $x = h$. Read the slope from the coefficient.	$f(x) = \text{abs}(x - 3) + 2$ has vertex $(3, 2)$, an upward V.
21	Solving Equations with Radicals	Isolate the radical, then square both sides to eliminate it. CHECK solutions - squaring can add extraneous roots.	After solving, plug back in: $\sqrt{9 - x} = x - 1$ can produce a root that does not satisfy the original.	$\sqrt{x + 6} = x$ $\rightarrow x + 6 = x^2$ $\rightarrow x = 3$ or -2 ; only $x = 3$ checks.
22	Piecewise Functions	A function defined by different formulas on different intervals; evaluate by finding which piece applies to the input.	Check the interval boundaries: an input like $x = 2$ goes to the piece whose condition includes 2 ($\leq$ vs $<$ matters).	$f(x) = x + 1$ for $x < 2$, $3x$ for $x \geq 2$; $f(2) = 6$.

Section 7: Math - Problem-Solving & Data Analysis (22 Concepts)

About 15% of the digital SAT Math section. Ratios, percentages, probability, statistics, and the 'read the chart' skills also woven into Reading & Writing.

#	Term	Key Facts	SAT Tip	Example
1	Mean, Median, Mode	Mean = sum/n. Median = middle value of sorted data (average of the two middles if even count). Mode = most frequent value.	Median NEEDS sorted data; the mean is pulled toward outliers. The SAT asks which measure best describes the data.	Data 2, 3, 7, 10, 13: mean 7, median 7.
2	Range & Outliers	Range = max - min. An outlier is a value far from the rest; it drags the mean but not the median.	When a question asks which statistic an outlier most affects, answer the MEAN.	Data 4, 5, 6, 100: range 96; median 5.5; mean ~28.75.
3	Standard Deviation (Concept)	Standard deviation measures spread around the mean: small = tightly clustered, large = widely spread.	You never compute it by hand - you compare it: which data set is more spread out?	Heights 5'10, 5'11, 6'0 have a smaller SD than 5'4, 5'11, 6'6.
4	Interpreting Box Plots	A box plot shows min, Q1, median, Q3, max. The box holds the middle 50% of the data.	The median is the line inside the box, not the middle of the box lines; the whiskers reach to min/max.	A box from 10 to 30 with median 20: half the data is between 20 and 30, not 10 and 30.
5	Dot Plots & Histograms	Dot plots show each value as a dot; histograms group values into bars. Read the shape: symmetric, skewed, or clustered.	For a histogram, use the bar MIDPOINT for approximate values; the tallest bar is the most common range.	A histogram peaking at the 50-59 bar and trailing left is roughly symmetric around that range.
6	Scatterplots: Association	Scatterplots show two variables per point. Points rising together =		

positive
association;
falling =
negative; no
pattern = none.

Association is
about the
SHAPE of the
cloud - not single
points. Add

context: 'as x
increases, y
increases'.

Hours studied (x)
vs score (y)
rising together =
positive
association.

7	Line of Best Fit	The trend line through a scatterplot summarizes the relationship; points above and below it are spread out evenly.	Use the line, not the points, to estimate 'typical' y for a given x - interpolate inside the data range.	Best-fit $y = 2x + 1$ at $x = 5$ estimates $y = 11$ even if the data point there is 12.
8	Residuals & Fit Quality (Concept)	A residual is the difference (actual - predicted). Tight residuals near zero = a good fit; a curved pattern of residuals = the line is wrong.	If residuals form a curve, a linear model is a poor fit - the relationship is not linear.	Points alternating far above and below the line in a U shape: the line fits poorly.
9	Probability: Single Event	$P(\text{event}) = \text{favorable outcomes} / \text{total outcomes}$, always 0 to 1 (0% to 100%).	Count the TOTAL outcomes carefully - the total includes ALL possibilities, not just favorable ones.	A bag with 3 red and 5 blue marbles: $P(\text{red}) = 3/8$.
10	Probability: Two Events	$P(A \text{ and } B) = P(A) \times P(B)$ for independent events. $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ for overlapping events.	'And' multiplies (independent); 'or' adds then subtracts the overlap. Mutually exclusive events have zero overlap.	$P(\text{red then red with replacement}) = (3/8)^2$; without replacement = $(3/8)(2/7)$.
11	Conditional Probability	$P(B \text{ given } A)$ is the probability of B within the group where A already happened - the denominator shrinks to A's group.	The word 'given' or 'of those who' signals a conditional: use only the subset's totals, not the whole table.	$P(\text{red given it came from bag A})$ uses only bag A's marble count as the total.
12	Expected Value	Expected value = sum of (outcome x its probability). It is the long-run average of a random process.	Multiply each payoff by its probability and add, including any cost to play as a negative.	A \$1 ticket winning \$10 with $P = 1/5$: $EV = (1/5)(10) + (4/5)(0) = \2 (before the \$1 price).

13	Counting: Combinations & Permutations	Permutations count ordered arrangements: $P(n, r) = n!/(n - r)!$. Combinations count selections: $C(n, r) = n!/(r!(n - r)!)$.	Ask 'does order matter?' - committees and hands = combinations; sequences and codes = permutations.	Choosing 2 of 5 for a committee: $C(5, 2) = 10$. Ordering 2 of 5: $P(5, 2) = 20$.
14	Sampling & Bias	A representative sample is random and large enough to stand in for the population. Bias creeps in with convenience samples, leading questions, or nonresponse.	The SAT asks 'why might this survey be flawed?' - look for a non-representative sample, not just a small one.	Surveying only mall shoppers about a national soda preference is biased toward mall-goers.
15	Comparing Groups (Tables)	Two-way tables compare categories; questions ask which group has the higher proportion, or whether the table supports a claim.	Always compute the proportion WITHIN the relevant group: 'of the smokers, what fraction ...' uses the smoker column as the denominator.	Of 100 smokers, 40 got lung disease (40%); of 100 nonsmokers, 10 (10%) - the table supports an association.
16	Percent of Total & Parts	Part = percent x whole; whole = part/percent. Percent-of-total questions find what fraction a group makes of the grand total.	'What percent of the total is X?' = $X/\text{total} \times 100\%$, not $X/\text{other-group}$.	30 of 120 students take Spanish: $30/120 = 25\%$.
17	Ratio: Part:Part vs Part:Whole	A part:part ratio (2:3) splits the whole into 5 parts; a part:whole fraction (2/5) uses the whole as denominator.	Convert part:part to fractions: total = sum of parts. If boys:girls = 2:3, boys = $2/5$ of all students.	Mix 2:3 & 5 parts total; $2/5$ is water if water:syrup = 2:3.
18	Unit Rate	A unit rate is a ratio with denominator 1: miles per hour, price per item, pages per minute.	Divide the first quantity by the second; label the result with units.	12 eggs cost \$3 & $\$3/12 = \0.25 per egg.

19	Two-Way Data Tables	Tables with row and column categories, often with totals. Read the cell for the intersection of the two specified categories.	The intersection cell answers 'how many are BOTH A and B'; row/column totals are in the margins.	In a table, the cell at 'male' x 'voted' counts males who voted.
20	Inference from a Sample	A well-chosen random sample lets you estimate the whole population within a margin - but only the sampled population.	The inference reaches only the group the sample was drawn from: a sample of 9th graders does not describe all students.	A random sample of 500 voters suggests the whole city's lean, within the stated margin.
21	Margin of Error (Concept)	A margin of error (e.g., $\pm 3\%$) gives a range around an estimate; the true population value likely falls inside it.	Narrower margins come from larger, well-designed samples - and the SAT only asks you to reason about the idea, not compute it.	$39\% \pm 3\%$ means the true value likely sits between 36% and 42%.
22	Real-Life Data Modeling	Choose the model that fits a described situation: linear (constant change), exponential (constant ratio), or quadratic (accelerating then reversing).	Two data points are not enough - check the change pattern across several steps before choosing the model type.	Population 100, 110, 121, 133.1... multiplies by 1.1 each step = exponential.

Section 8: Math - Geometry & Trigonometry (22 Concepts)

About 15% of the digital SAT Math section. Lines, angles, triangles, circles, area, volume, and right-triangle trigonometry - formula-driven and coachable.

#	Term	Key Facts	SAT Tip	Example
1	Angles: Types & Relationships	Complementary = 90 total; supplementary = 180 total; vertical angles are equal; adjacent angles on a line sum to 180.	Mark the diagram: any two angles across an X are equal; any two on a straight line sum to 180.	If angle A = 40 and it is supplementary to B, angle B = 140.
2	Parallel Lines & Transversals	A line crossing parallel lines creates equal corresponding angles, equal alternate interior angles, and supplementary same-side interior angles.	Look for the Z shape (alternate interior) and the F shape (corresponding) - they are equal.	With parallel lines, the angle matching the given 70-degree angle is also 70.
3	Triangle Angle Sum & Exterior	Interior angles sum to 180. An exterior angle equals the sum of the two remote interior angles.	Given two interior angles, subtract from 180 for the third; for an exterior, add the two remote angles.	Angles 50 and 60 -> third = 70; the exterior at the 70 corner = 50 + 60 = 110.
4	Triangle Inequality	Any two sides of a triangle must sum to MORE than the third side - otherwise the triangle cannot close.	Test all three pairings; the side that fails the rule makes the answer impossible.	Sides 2, 3, 8: 2 + 3 < 8, so no such triangle.
5	Isosceles & Equilateral Triangles	Isosceles: two equal sides, two equal base angles. Equilateral: three equal sides, three 60-degree angles.	In an isosceles triangle, the base angles (opposite the equal sides) match - the apex differs.	Isosceles with apex 40 -> base angles are $(180 - 40)/2 = 70$ each.

6	Pythagorean Theorem	$a^2 + b^2 = c^2$ with c the hypotenuse (opposite the right angle).	Identify the hypotenuse FIRST; the legs can be any order in $a^2 + b^2$. Watch for 3-4-5 and 5-12-13 triples.	Legs 6 and 8 -> $c = \sqrt{36 + 64} = 10$.
7	Special Right Triangles: 45-45-90	Legs are equal; hypotenuse = leg $\times \sqrt{2}$. Ratio 1 : 1 : $\sqrt{2}$.	Given the hypotenuse, divide by $\sqrt{2}$ to get the leg; given a leg, multiply by $\sqrt{2}$.	Leg 5 -> hypotenuse $5 \times \sqrt{2}$.
8	Special Right Triangles: 30-60-90	Ratio 1 : $\sqrt{3}$: 2 - short leg : long leg : hypotenuse. The short leg is opposite the 30-degree angle; hypotenuse = 2 x short leg.	Find the SHORT leg first (opposite 30), then double it for the hypotenuse and multiply by $\sqrt{3}$ for the long leg.	Short leg 4 -> long leg $4 \times \sqrt{3}$, hypotenuse 8.
9	Right Triangle Trig (SOH-CAH-TOA)	$\sin = \text{opposite/hypotenuse}$, $\cos = \text{adjacent/hypotenuse}$, $\tan = \text{opposite/adjacent}$ - for the acute angle in a right triangle.	Label the sides from the angle's point of view before choosing the ratio; SOH-CAH-TOA keeps them straight.	For an angle with opposite 3, hypotenuse 5: $\sin = 3/5$.
10	Trig Ratios in Context	Word problems use a right triangle (height of a building, distance across water) - draw it, label the known side and angle, pick the ratio.	Choose the ratio with ONE known side and the side you need - you can then solve for the missing side.	A 30-degree angle and a 50-ft adjacent side: use $\cos(30) = 50/\text{hypotenuse}$ to find the hypotenuse.
11	Law of Sines & Cosines (Concept)	For non-right triangles: law of sines $a/\sin(A) = b/\sin(B) = c/\sin(C)$; law of cosines $c^2 = a^2 + b^2 - 2ab \cos(C)$.	The digital SAT tests these rarely and mostly at the 'set it up' level - know when each applies, not the derivation.	Two sides and the included angle -> law of cosines for the third side.

12	Area: Triangles & Parallelograms	Triangle area = $(1/2) \times \text{base} \times \text{height}$ (height measured perpendicular to the base). Parallelogram area = $\text{base} \times \text{height}$.	The height is the perpendicular distance, NOT the slanted side - read the diagram for the right angle.	Triangle with base 6, height 4 -> area 12.
13	Area: Circles & Sectors	Circle area = $\pi \times r^2$. Sector area = $(\text{central angle}/360) \times \pi \times r^2$.	A sector's fraction of the circle equals its central-angle fraction out of 360 - use that to scale the full area.	A 90-degree sector of a circle with $r = 4$: $(90/360) \times 16\pi = 4\pi$.
14	Circumference & Arc Length	Circumference = $2 \times \pi \times r = \pi \times d$. Arc length = $(\text{central angle}/360) \times 2 \times \pi \times r$.	Arc length and sector area both use the $\text{angle}/360$ fraction - set up the fraction once and reuse it.	Radius 6, arc with 60-degree angle: $(60/360) \times 12\pi = 2\pi$.
15	Volume: Prisms & Cylinders	Prism volume = $\text{base area} \times \text{height}$. Cylinder volume = $\pi \times r^2 \times h$.	The 'base area' is the shape you stack - find it first, then multiply by the height.	Cylinder $r = 3$, $h = 5$: volume = $\pi \times 9 \times 5 = 45\pi$.
16	Volume: Pyramids, Cones & Spheres	Pyramid/cone volume = $(1/3) \times \text{base area} \times \text{height}$. Sphere volume = $(4/3) \times \pi \times r^3$.	The $1/3$ factor separates pyramids/cones from prisms/cylinders - the formula sheet gives it, so just place the right shape.	Cone with base area 12 and height 6: volume = $(1/3)(12)(6) = 24$.
17	Surface Area (Basics)	Surface area = the sum of the areas of all faces. Rectangular prism: $2(lw + lh + wh)$; cylinder: $2 \times \pi \times r^2 + 2 \times \pi \times r \times h$.	Unfold the shape in your head: count each face once; the formula sheet lists the main ones.	Cube with edge 3: SA = $6 \times 9 = 54$.
18	Coordinate Geometry: Distance & Midpoint	Distance = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$; midpoint = $((x_1 +$		

$x_2)/2, (y_1 + y_2)/2).$

Distance is the
hypotenuse of a
right triangle
made from the x

and y
differences.

From (1, 1) to (4,
5): distance =
 $\sqrt{9 + 16} = 5$.

19	Coordinate Geometry: Circle Equation	$(x - h)^2 + (y - k)^2 = r^2$ with center (h, k) and radius r .	Read the center from the signs INSIDE the parentheses $(x - 2 = \text{center } x \text{ of } 2)$; the constant is r^2 .	$(x - 3)^2 + (y + 4)^2 = 25$: center $(3, -4)$, radius 5.
20	Transformations on the Grid	Translations slide a figure; reflections flip it across a line; rotations turn it about a point; dilations resize it about a center.	Track one vertex (e.g., the original point) to see how the whole figure moves; dilations multiply distances from the center.	Reflecting $(2, 3)$ across the x-axis gives $(2, -3)$.
21	Congruence & Similarity	Congruent figures are identical in size and shape. Similar figures have proportional sides and equal angles (scale factor k).	Similarity = same angle measures + proportional sides; the scale factor links every pair of corresponding sides.	Triangle scaled by 3: sides triple, angles stay equal - similar but not congruent.
22	Scale Factor: Area & Volume	If linear dimensions scale by k , area scales by k^2 and volume by k^3 .	Square the scale factor for area questions; cube it for volume - the most common trap is using k itself.	Doubling a cube's edge ($k = 2$) multiplies its volume by 8.

Section 9: Digital SAT Format, Tools & Adaptive Logic (16 Concepts)

How the machine works: modules, adaptation, the built-in tools, and the scoring you are playing toward. Knowing the format is worth points.

#	Term	Key Facts	SAT Tip	Example
1	Digital SAT Overview	98 questions, ~2 hours 14 minutes: Reading & Writing (54 questions / 64 min) then Math (44 questions / 70 min). Fully digital since spring 2024 in the US.	Practice at full length in Bluebook at least once - stamina and the interface are real factors.	R&W 54 + Math 44 = 98 questions across ~134 minutes of testing.
2	Reading & Writing Structure	Two modules of 27 questions, 32 minutes each. Four domains: Craft & Structure, Information & Ideas, Standard English Conventions, Expression of Ideas.	Each domain recurs in both modules - expect conventions (11-15) and craft & structure (13-15) to dominate.	In a 27-question module, roughly 4-6 questions are typically conventions.
3	Math Structure	Two modules of 22 questions, 35 minutes each. Domains: Algebra, Advanced Math, Problem-Solving & Data Analysis, Geometry & Trigonometry.	Algebra and Advanced Math together are ~70% of the section - weight your prep accordingly.	In a 22-question module, roughly 5 questions are usually grid-ins.
4	Adaptive Module Logic	Module 1 is identical for everyone; Module 2 difficulty adapts to your Module 1 performance. Harder Module 2 = higher ceiling.	Treat Module 1 like a qualifying round: accuracy there decides the difficulty you face - and the top scores you can earn.	A strong Module 1 usually routes you to the harder Module 2, where near-perfect performance scores higher.

5	Module 1 Strategy	Because adaptation happens AFTER Module 1, you cannot 'fix' a weak Module 1 with a great Module 2 - the ceiling is set.	Maximize Module 1: never skip to save time for Module 2; every Module 1 question affects the difficulty and your score.	Rushing Module 1 to 'save time' for Module 2 is backwards - do your best on both, and never rush Module 1.
6	Within-Module Difficulty	Within each module, questions get harder as you go - the early questions are easier, the later ones weight the score more.	Do not panic when questions feel hard at the end of a module; that is by design and may mean you are taking the harder path.	If the first questions feel easy and the last ones hard, you are likely in the harder Module 2 - a good sign.
7	Flagging & Review	Every question can be flagged for review; you can jump between questions WITHIN the same module and return before you submit it.	Flag the ones you skipped, then use the remaining time to return - but submit on time: unanswered questions score zero.	Strategy: answer everything once, flag the uncertain ones, then return to flags with any time left in the module.
8	Annotation & Highlight Tools	In Bluebook you can highlight passage text and take on-screen notes. These tools travel with you through the module.	Highlight the evidence sentence in Reading questions - it trains you to find the support before picking an answer.	For a Command of Evidence question, highlight the claim first, then the supporting excerpt.
9	Desmos Built-In Calculator	The digital SAT has a built-in Desmos graphing calculator available in BOTH math modules, for every question.	Practice the Desmos features (graphing, tables, regression) in Bluebook before test day - knowing the tool saves minutes.	For 'which function matches the graph', type the options into Desmos and compare.
10	Handheld Calculator Policy	You may also bring an approved handheld calculator (a list is on the College		

Board site). The built-in one is always there.

Choose the tool you know best - the built-in Desmos is enough for the whole test; a

handheld is
optional.

If you bring one,
it must be on the
approved list and
you must know
how to clear it.

11	Four Answer Choices	Every multiple-choice question has exactly FOUR answer choices (removed the old five-choice format).	Elimination is faster with fewer options: remove two and you are down to a coin flip with good odds.	On a four-choice question, eliminating two obvious wrong answers gives you a 50% shot on the remaining pair.
12	Grid-In (Student-Produced Response)	About 22% of Math questions have no choices: you type a number into the answer box (fractions, decimals, integers).	You can enter up to 5 characters; a fraction like $\frac{3}{4}$ or the decimal 0.75 both count. No negatives, no expressions.	For $\frac{1}{2}$, type '1/2' or '.5' - both are accepted.
13	No Wrong-Answer Penalty	Your score counts only correct answers; blanks and wrong answers are worth the same (zero).	NEVER leave a question blank - every guess is free. Even blind guessing on four choices is a 25% lottery ticket.	A module with 3 blanks forfeits up to 3 questions that a guess might have gotten right.
14	Scoring: 400-1600	Total 400-1600 = Reading & Writing (200-800) + Math (200-800), both scaled via the adaptive model. IRT weights difficulty.	Your scaled score is not a simple percent - you can miss questions and still hit a top score; the harder questions you answer correctly outweigh easy ones.	Missing a few hard questions in Module 2 can still yield a 700+ section score.
15	Score Reporting	The digital SAT releases scores in DAYS, not the weeks of the paper era. You pick which scores to send and can superscore across dates.	Check each college's policy: many use your highest section scores across tests (superscore), so a retake that lifts one section helps.	A retake that raises Math from 650 to 700 raises your superscore even if Reading dips.
16	Practice in Bluebook	Bluebook is the official app that runs the real test - the same interface, tools, and adaptive behavior. Free		

practice tests are
inside it.

Do at least one full Bluebook run before test day so nothing about the interface is new to you.	A Bluebook practice run shows your module-2 routing - a useful signal of where you stand.
---	---

Section 10: Test-Day Strategy & Pacing (18 Concepts)

The checklist that protects your score: logistics, pacing, flagging, guessing, and the adaptive mindset.

#	Term	Key Facts	SAT Tip	Example
1	The Night Before	Sleep is measurable points: go to bed early, and have your ID, ticket, calculator, and charger packed before you sleep.	The SAT rewards a rested brain more than a last cram - light review only, then stop.	Pack tonight: photo ID, admission ticket, approved calculator with fresh batteries, charger, water, snack.
2	Morning Logistics	Eat something, allow extra travel time, and arrive early - the check-in (including device setup) happens at the center.	Arrive at least 15-30 minutes early; rushing raises your heart rate before Module 1, which is exactly wrong.	A 15-minute stress buffer before check-in keeps you calm when the screen first lights up.
3	Device Readiness	Your testing session runs in the Bluebook app with lock-down mode; it must be installed and your laptop/tablet must be charged (test-day rules may specify outlets).	Install Bluebook and run the practice session days ahead - the app must be updated before test morning.	A fully charged, Bluebook-ready device plus a backup plan for charging beats a last-minute install.
4	Calculator & Scratch Work	Use the built-in Desmos (plus an approved handheld if you prefer) and the scratch paper/pen provided at the center.	Write out intermediate steps - the provided scratch paper is free; your working memory is not.	On a long word problem, sketch the setup on scratch before typing numbers into Desmos.
5	Pacing: Reading & Writing	27 questions in 32 minutes = about 71 seconds per question. Spending long on one reading		

question starves
the module.

If a question eats 90+ seconds, flag it and move on; return only after finishing the module's quick wins.	A 71-second budget: read the passage (~25-150 words) fast, pick the best answer, flag if unsure.
---	--

6	Pacing: Math	22 questions in 35 minutes = about 95 seconds per question; grid-ins can take longer, so bank time on the easy ones.	Do the easy questions first in number order, use Desmos to verify, and flag anything past 2 minutes.	A fast first pass through 15 quick questions builds the cushion for the 5-7 harder ones.
7	Skip-and-Flag Strategy	Never sink 3 minutes into one question. Flag it, finish the module's other questions, then return with fresh eyes and leftover time.	The flag list is your second pass - and your last 2-3 minutes should be guesses on anything still unanswered (free points).	With 4 minutes left and 3 flagged questions, answer all 3 (one is likely right) instead of perfecting one.
8	Guessing Efficiently	There is no penalty, so every blank is a loss. Eliminate obviously wrong answers first, then guess among the rest.	Four choices -> eliminate two -> 50/50. Even zero elimination gives 25% - still worth it.	Between two similar math answer choices, their midpoint is often the answer - but only after real elimination.
9	The Adaptive Mindset	Harder questions in Module 2 are a sign of a strong Module 1, not a disaster. Never let difficulty shake your pace.	Answer the hard Module 2 questions carefully but keep moving - the score rewards correct answers at any difficulty.	Seeing harder math in Module 2 means you likely scored well in Module 1 - keep executing.
10	Time Check Discipline	Check the module timer at logical points: after question 7 in R&W, after question 6 in Math. Adjust speed in the moment.	If you are behind at the half-module mark, start skipping the clearly hard ones and focus on bankable questions.	At the halfway point of Math (question 11), you should be near the half-time mark - if not, speed up.
11	Reading: Evidence First	For Reading questions, find the evidence in the passage BEFORE choosing - the support decides the answer, not your memory or		

opinion.

Highlight the supporting sentence; if you cannot find one, the option is likely wrong.	On Command of Evidence, the correct option is the one whose text - not your recollection - supports the claim.
--	--

12	Math: Verify with Desmos	Use Desmos to check algebra: graph the equation to see intercepts, or plug options in to verify a solution.	Typing the answer choices into a function and graphing them catches sign and arithmetic slips.	For 'which is equivalent', graph the given expression and each option - the matching graph is the answer.
13	Grid-In Care	Type grid-ins carefully: fractions (3/4) and decimals (.75) both count; check you entered the right number and no leading zero issue.	Reread the question's units before submitting - a grid-in for 'hours' typed as 'minutes' is a painful miss.	If the answer is 0.5, '.5' and '1/2' are both accepted - either is fine.
14	Use Your Scratch Paper	Write down the plan: define the variable, note the formula, sketch the figure. Offload everything from your head.	A clean scratch layout prevents the arithmetic slips that sink careful test takers.	Before a multi-step word problem: 'let $x =$ the smaller', then ' $x + 8 = 20$ ' on paper, then solve.
15	Don't Leave Early	Use every second of each module: review flagged items, recheck grid-ins, and re-do the 2-3 math questions you raced through.	The last five minutes of a module are often worth 10-20 points - spend them reviewing, not sitting.	In the final minutes, reread the worst-flagged questions with the timer pressure removed.
16	Superscore & Retake Plan	Check each target college's policy: many superscore (best section scores across dates) and accept score choice.	A retake that lifts any one section adds to your superscore - plan the retake around your lowest section.	If Math is 620 and Reading 700, a retake targeting Math can raise your superscore total even if Reading dips slightly.
17	Essay & Special Circumstances	The essay is discontinued nationally; a rare School Day administration may include it where a state requires it - confirm for your date.	Your guide prep covers only the multiple-choice SAT; if your state adds an essay, check the separate state guidance.	For a standard National Saturday SAT: no essay, no science section - just R&W and Math.

18	After the Test	Scores arrive in days online; review your section scores, decide on a retake based on your target schools' mid-ranges, and keep practicing.	Use the diagnostic breakdown (module scores, domain scores) to target the next study cycle at your weakest domains.	A released score report naming 'expressions of ideas' as weak tells you exactly what to drill for the retake.
----	----------------	---	---	---

Final Review: 48-Hour Rapid Review

The highest-yield items to drill in your final two days.

- The Digital SAT: 98 questions, ~2h 14m. R&W = 54 questions / 64 min in two 27-question modules; Math = 44 / 70 min in two 22-question modules. Module 2 adapts to Module 1 - do your best on Module 1. Four answer choices; ~22% of Math are grid-ins; no wrong-answer penalty, so answer EVERYTHING. Calculator (Desmos built-in) allowed throughout. Scores 400-1600 (R&W 200-800 + Math 200-800), out in days. No essay nationally, no separate science section.

- Reading & Writing: answer from the TEXT, not outside knowledge; the evidence line decides the answer. Words-in-context = exact meaning + tone. Transitions must match the logical relationship (contrast/add/result/example). Rhetorical synthesis options must use ONLY the notes given. Standard English conventions are mostly sentence boundaries: two full clauses need a period, semicolon, or comma + conjunction. Subject-verb agreement ignores interrupting phrases. Concision wins: the shortest correct phrasing is usually right.

- Math: slope = rise/run; perpendicular slopes are negative reciprocals; systems add/eliminate; quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$; discriminant tells root count; vertex $x = -b/(2a)$; exponential base = per-period multiplier ($1.05 = +5\%$); 45-45-90 is $1-1-\sqrt{2}$, 30-60-90 is $1-\sqrt{3}-2$; SOH-CAH-TOA; area scales by k^2 and volume by k^3 ; $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$; median needs sorted data; a random sample describes only the population it was drawn from.

- Format strategy: pace R&W ~71 sec/question and Math ~95 sec; flag and move on past 90-120 seconds; return to flags inside the same module; guess everything blank at the end. Harder Module 2 = you did well on Module 1 - keep executing. Verify grid-ins (units, fractions vs decimals). Use Desmos to graph and check. Sleep, eat, ID, ticket, charged device, approved calculator - the logistics protect the score you earned in practice.

Test-Day Blueprint: The 10-Point Checklist

A condensed checklist to review the morning of the test.

- 1. Logistics: photo ID, admission ticket, charged Bluebook-ready device, approved calculator, water, snack - packed the night before.
- 2. Arrive early and stay calm; check in, sit down, and let the Bluebook session start when prompted.
- 3. Module 1 of each section = maximum effort: it sets your Module 2 difficulty and your ceiling.
- 4. Pace: R&W ~71 seconds/question, Math ~95 seconds/question - keep an eye on the timer at the half-module mark.
- 5. Flag and move on; never sink 3 minutes into one question.
- 6. Read for evidence: highlight the supporting line in Reading before choosing.
- 7. Use Desmos to verify algebra, graphing, and answer-choice checks.
- 8. Answer EVERY question - no penalty for guessing; blanks are guaranteed zeros.
- 9. Finish each module with time to review flags and recheck grid-ins.
- 10. After the test: expect scores in days, review the diagnostic, and plan any retake around your lowest section.
-
- Scores you will see: a total 400-1600 with Reading & Writing (200-800) and Math (200-800) section scores, plus domain breakdowns in your online report. Check each college's superscore and score-choice policy before deciding what to send.