

20 Math Formulas You Need

Memorize these before test day. The PSAT gives you a limited reference sheet - having these ready buys you time on every math section.

Slope	$m = (y_2 - y_1) / (x_2 - x_1)$	Area of Circle	$A = \pi * r^2$
Slope-Intercept	$y = mx + b$	Circumference	$C = 2 * \pi * r$
Point-Slope	$y - y_1 = m(x - x_1)$	Volume of Rectangular Prism	$V = l * w * h$
Standard Form	$Ax + By = C$	Volume of Cylinder	$V = \pi * r^2 * h$
Distance Formula	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	Percent Change	$\% \text{ Change} = ((\text{New} - \text{Old}) / \text{Old}) * 100$
Midpoint Formula	$M = ((x_1 + x_2)/2, (y_1 + y_2)/2)$	Simple Interest	$I = P * r * t$
Quadratic Formula	$x = (-b \pm \sqrt{b^2 - 4ac}) / 2a$	Exponential Growth	$y = a * (1 + r)^t$
Vertex of Parabola	$x = -b / 2a$	Exponential Decay	$y = a * (1 - r)^t$
Pythagorean Theorem	$a^2 + b^2 = c^2$	Special Right (45-45-90)	sides: $1 : 1 : \sqrt{2}$
Area of Triangle	$A = (1/2) * b * h$	Special Right (30-60-90)	sides: $1 : \sqrt{3} : 2$

Three study tips from our team

01 Don't just memorize

Practice recognizing which formula to use. Time yourself on 5 problems per formula category and note where you hesitate.

02 Handwrite them once a week

Copying by hand builds recall speed - much stronger than re-reading a printed sheet. Do it every Sunday leading up to test day.

03 Turn each formula into a word problem

If you can write a real-world question that uses the formula, you truly own it. Trade problems with a friend for extra reps.

Ready to test yourself?

Take the free interactive quiz at victorypreptutors.com/blog/psat-quiz - 30 questions with instant feedback.

20 Grammar Rules You Need

The PSAT tests these rules constantly. Master these and you'll recognize the pattern instantly, not guess.

Subject-Verb Agreement	Singular subject takes singular verb. 'The list of names IS long' (subject is 'list', not 'names').
Comma Splice	Never join two independent clauses with just a comma. Use a period, semicolon, or comma + FANBOYS.
FANBOYS	For, And, Nor, But, Or, Yet, So - coordinating conjunctions that join clauses with a comma before them.
Semicolon Use	Joins two independent clauses that could stand alone. Both sides must be full sentences.
Colon Use	Follows a complete sentence to introduce a list, quote, or explanation.
Apostrophe - Possessive	Singular: add 's (dog's bone). Plural ending in s: add ' (dogs' bones).
Its vs. It's	Its = possessive (its tail). It's = it is (it's raining). No apostrophe means possessive.
Who vs. Whom	Who = subject (Who called?). Whom = object (To whom?). Try substituting he/him.
Pronoun-Antecedent	Pronoun must match noun in number. Formal PSAT: singular indefinite pronouns take 'his or her'.
Parallelism	Items in a list must share the same grammatical form: running, jumping, swimming (all -ing).
Modifier Placement	Modifier must be next to the word it describes. 'Walking home, the rain started' is wrong.
Verb Tense Consistency	Keep tense consistent within a sentence unless the time frame actually changes.
Fewer vs. Less	Fewer = countable (fewer books). Less = uncountable (less water).
Between vs. Among	Between = 2 items. Among = 3 or more.
Effect vs. Affect	Affect = verb (to influence). Effect = noun (the result). Rare exceptions exist.
Then vs. Than	Then = time (first this, then that). Than = comparison (bigger than).
Their / There / They're	Their = possessive. There = place. They're = they are.
Your vs. You're	Your = possessive (your book). You're = you are (you're smart).
Transition Words	Match the logic: 'however' = contrast, 'therefore' = cause/effect, 'moreover' = addition.
Titles - Italics vs. Quotes	Long works (books, films) = italics. Short works (poems, songs, articles) = quotes.

Want a real PSAT score jump?

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