FREE PSAT MATH FORMULA SHEET
All the Essential Formulas You Need for Test Day

Master your SAT Math section with this handy formula sheet. Keep it by your side as you practice. Boost confidence, save time, and score higher.

Geometry Formulas

Area
- Rectangle: $A = lw$
- Triangle: $A = 1/2\ bh$
- Parallelogram: $A = bh$
- Trapezoid: $A = 1/2\ (b_1 + b_2)h$
- Circle: $A = \pi r^2$

Perimeter and Circumference
- Rectangle: $P = 2(l + w)$
- Square: $P = 4s$
- Circle: $C = 2\pi r$

Volume
- Rectangular solid: $V = lwh$
- Cylinder: $V = \pi r^2 h$

Right Triangles
- $a^2 + b^2 = c^2$

Coordinate Geometry

- Slope: $m = (y_2 - y_1) / (x_2 - x_1)$
- Distance: $\sqrt{[(x_2 - x_1)^2 + (y_2 - y_1)^2]}$
- Midpoint: $((x_1 + x_2)/2\ ,\ (y_1 + y_2)/2)$

Linear Equations

- Slope intercept form: $y = mx + b$
- Point slope form: $y - y_1 = m(x - x_1)$

System of Equations

- Solve by substitution
- Solve by elimination
- Solution is the point of intersection

Tutor Tip

Most PSAT math mistakes are not caused by missing formulas, but by misapplying them. Focus on recognizing question patterns, setting up equations carefully, and checking your work when time allows. Strong formula recall paired with smart application leads to the biggest score gains.

Exponents and Radicals

- $a^m \times a^n = a^{m+n}$
- $a^m \div a^n = a^{m-n}$
- $(a^m)^n = a^{mn}$
- $\sqrt{a^2} = a$
- $\sqrt{ab} = \sqrt{a}\ \sqrt{b}$

Quadratics

- $x^2 + bx + c = (x + p)(x + q)$
- $x = (-b \pm \sqrt{(b^2 - 4ac)}) / 2a$

Percent and Ratio Formulas

- Percent = (part ÷ whole) × 100
- Percent change = (change ÷ original) × 100
- New value = original × (1 ± percent change)

Averages and Rates

- Average = sum ÷ number of values
- Rate = distance ÷ time

Probability

- Probability = favorable outcomes ÷ total outcomes

Common Pitfalls

- Memorizing formulas without understanding when to apply them
- Mixing up area and perimeter formulas
- Forgetting to square the radius in circle area problems
- Incorrectly identifying slope direction or sign
- Misreading units or failing to convert units
- Rushing through algebraic steps and making small arithmetic errors

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