SAT Math Formula Sheet

Essential formulas organized by SAT math section. Know these by heart to save time on test day.

Linear Equations

Slope-intercept: $y = mx + b$
Point-slope: $y - y1 = m(x - x1)$
Slope: $m = (y2 - y1) / (x2 - x1)$
Standard form: $Ax + By = C$
Systems: Substitution or elimination

Ratios & Statistics

Proportions: $a/b = c/d$, cross multiply: $ad = bc$
Percentage: Part = (Percent/100) x Whole
% Change: (New - Original) / Original x 100
Mean: Sum of values / Count
Median: Middle value (ordered data)
Mode: Most frequent value
Probability: P = Favorable / Total outcomes

Quadratics & Exponents

Quadratic formula: $x = (-b \pm (b^2 - 4ac)) / 2a$
Standard form: $ax^2 + bx + c = 0$
Vertex form: $y = a(x - h)^2 + k$
Discriminant: $b^2 - 4ac$ (+ two, 0 one, - none)
Diff. of squares: $a^2 - b^2 = (a + b)(a - b)$
Radicals: $(ab) = a \times b$
Product: $x^a \times x^b = x^{(a+b)}$
Power: $(x^a)^b = x^{(ab)}$
Zero/Neg: $x^0 = 1$, $x^{(-a)} = 1/x^a$

Geometry & Measurement

Circle: $A = \pi r^2$, $C = 2\pi r$
Triangle: $A = (1/2) \times$ base $\times$ height
Pythagorean: $a^2 + b^2 = c^2$
30-60-90: x : x3 : 2x
45-45-90: x : x : x2
Cylinder: $V = \pi r^2 \times h$
Sphere: $V = (4/3)\pi r^3$
Cone: $V = (1/3)\pi r^2 \times h$

The SAT gives you a formula reference sheet - but knowing these by heart saves time and builds confidence.