

SAT Math Formula Sheet 2026-2027

Formula-only reference organized by SAT Math domain

Official Reference: Geometry & Measurement

Formula Name	Formula
Circle Area	$A = \pi r^2$
Circle Circumference	$C = 2\pi r$
Rectangle Area	$A = lw$
Triangle Area	$A = \frac{1}{2}bh$
Pythagorean Theorem	$a^2 + b^2 = c^2$
30-60-90 Triangle	$x, x\sqrt{3}, 2x$
45-45-90 Triangle	$x, x, x\sqrt{2}$
Rectangular Prism Volume	$V = lwh$
Cylinder Volume	$V = \pi r^2 h$
Sphere Volume	$V = \frac{4}{3}\pi r^3$
Cone Volume	$V = \frac{1}{3}\pi r^2 h$
Pyramid Volume	$V = \frac{1}{3}lwh$
Triangle Angle Sum	$A + B + C = 180^\circ$
Full Rotation	$360^\circ = 2\pi \text{ radians}$

Algebra

Formula Name	Formula
Slope	$m = (y_2 - y_1) / (x_2 - x_1)$
Slope-Intercept Form	$y = mx + b$
Point-Slope Form	$y - y_1 = m(x - x_1)$
Standard Form	$Ax + By = C$
Average Rate of Change	$[f(b) - f(a)] / (b - a)$
Distance-Rate-Time	$d = rt$
Direct Variation	$y = kx$
Proportion	$a / b = c / d$
Cross Multiplication	$ad = bc$
Unit Rate	quantity / number of units
System of Two Linear Equations	$a_1x + b_1y = c_1; a_2x + b_2y = c_2$
Addition/Subtraction Rule	$a < b \Rightarrow a + c < b + c$
Multiply/Divide by Positive	$a < b \Rightarrow ac < bc, c > 0$
Multiply/Divide by Negative	$a < b \Rightarrow ac > bc, c < 0$
Compound Inequality	$a < x < b$

Advanced Math	
Formula Name	Formula
Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Discriminant	$b^2 - 4ac$
Vertex x-Coordinate	$x = -b / 2a$
Vertex Form	$y = a(x - h)^2 + k$
Standard Quadratic Form	$y = ax^2 + bx + c$
Factored Form	$y = a(x - r_1)(x - r_2)$
Difference of Squares	$a^2 - b^2 = (a - b)(a + b)$
Product of Powers	$a^m \cdot a^n = a^{m+n}$
Quotient of Powers	$a^m / a^n = a^{m-n}$
Power of a Power	$(a^m)^n = a^{mn}$
Power of a Product	$(ab)^n = a^n b^n$
Negative Exponent	$a^{-n} = 1 / a^n$
Fractional Exponent	$a^{1/n} = \sqrt[n]{a}$
General Fractional Exponent	$a^{m/n} = \sqrt[n]{a^m}$
Exponential Growth	$A = P(1 + r)^t$
Exponential Decay	$A = P(1 - r)^t$
General Exponential Model	$y = ab^x$
Function Notation	$y = f(x)$
Composition	$f(g(x))$
Horizontal Shift	$f(x - h)$
Vertical Shift	$f(x) + k$
Reflection Across x-Axis	$-f(x)$
Reflection Across y-Axis	$f(-x)$

Problem-Solving & Data Analysis	
Formula Name	Formula
Percent	$(\text{part} / \text{whole}) \times 100\%$
Percent Change	$[(\text{new} - \text{original}) / \text{original}] \times 100\%$
Percent Increase	$\text{New} = \text{Original}(1 + r)$
Percent Decrease	$\text{New} = \text{Original}(1 - r)$
Unit Rate	$\text{quantity} / \text{units}$
Proportional Relationship	$y = kx$
Mean	$\text{sum of values} / \text{number of values}$
Weighted Mean	$\Sigma wx / \Sigma w$
Range	$\text{maximum} - \text{minimum}$

Formula Name	Formula
Median	middle value after ordering
Mean from a Known Sum	$\text{Mean} = \text{Total} / n$
Basic Probability	$P(A) = \text{favorable outcomes} / \text{total outcomes}$
Complement	$P(\text{not } A) = 1 - P(A)$
Addition Rule	$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$
Conditional Probability	$P(A B) = P(A \cap B) / P(B)$
Independent Events	$P(A \cap B) = P(A)P(B)$
Relative Frequency	frequency / total
Percentile Interpretation	percentage of observations at or below a value
Margin of Change	new value – old value

Geometry & Trigonometry	
Formula Name	Formula
Sine	$\sin \theta = \text{opposite} / \text{hypotenuse}$
Cosine	$\cos \theta = \text{adjacent} / \text{hypotenuse}$
Tangent	$\tan \theta = \text{opposite} / \text{adjacent}$
Distance Formula	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Midpoint Formula	$((x_1 + x_2) / 2, (y_1 + y_2) / 2)$
Circle Equation	$(x - h)^2 + (y - k)^2 = r^2$
Slope-Perpendicular Relationship	$m_1 m_2 = -1$