Galvanize

Digital SAT Math Reference Sheet

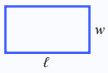
What the test gives you, and what it expects you to know already

ON YOUR TEST The reference sheet you can open during the Math section

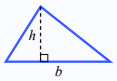
College Board shows this sheet inside the Bluebook app in every Math module. It is not offered as a download, so meet it before test day. You don't need to memorise it, but know what is on it so you never spend time looking.



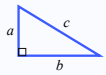
$A = \pi r^2$
$C = 2\pi r$
Circle



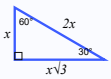
$A = \ell w$
Rectangle



$A = \frac{1}{2}bh$
Triangle



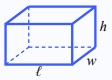
$c^2 = a^2 + b^2$
Pythagorean theorem



30°-60°-90°
Special right triangle



45°-45°-90°
Special right triangle



$V = \ell wh$
Rectangular prism



$V = \pi r^2 h$
Cylinder



$V = \frac{4}{3}\pi r^3$
Sphere



$V = \frac{1}{3}\pi r^2 h$
Cone



$V = \frac{1}{3}\ell wh$
Rectangular pyramid

Not on the sheet: slope, lines, the quadratic formula, circle equations, trigonometry and data. They are in the second half of this sheet.

The number of degrees of arc in a circle is **360**.

The number of radians of arc in a circle is **2π**.

The sum of the measures in degrees of the angles of a triangle is **180**.

LEARN THESE Not on the sheet, but the Math section expects you to know them

Algebra

Slope $m = \frac{y_2 - y_1}{x_2 - x_1}$

Lines $y = mx + b$ (b is the y-intercept) · $y - y_1 = m(x - x_1)$ · $Ax + By = C$ has slope $-A/B$

Parallel and perpendicular Non-vertical parallel lines have equal slopes. Vertical lines are parallel to other vertical lines (their slopes are undefined). For non-vertical lines, perpendicular slopes multiply to −1: $m_2 = -1/m_1$. A vertical and a horizontal line are also perpendicular.

Quadratic formula for $ax^2 + bx + c = 0$, $x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

Discriminant $b^2 - 4ac$: positive, 2 real solutions; zero, 1; negative, none

Parabolas Vertex form $y = a(x - h)^2 + k$ has vertex (h, k). For $y = ax^2 + bx + c$, the vertex is at $x = -b/(2a)$. Factored form $y = a(x - p)(x - q)$ has zeros p and q.

Exponents $a^m \cdot a^n = a^{m+n}$ · $a^m / a^n = a^{m-n}$ · $(a^m)^n = a^{mn}$ · $a^0 = 1$ · $a^{-n} = 1/a^n$ · $a^{m/n} = \sqrt[n]{(a^m)}$ ($a \neq 0$)

Growth and decay $y = a(1 + r)^t$ grows, $y = a(1 - r)^t$ decays (a = starting amount, r = rate as a decimal, t = number of periods)

Percent change (new − old) ÷ old × 100%

Two linear equations One solution: the lines meet at exactly one point. No solution: parallel lines with different intercepts, which never meet. Infinitely many solutions: both equations are the same line.

Geometry and trigonometry

Distance $d = \sqrt{((x_2 - x_1)^2 + (y_2 - y_1)^2)}$

Midpoint $((x_1 + x_2)/2, (y_1 + y_2)/2)$

Circle $(x - h)^2 + (y - k)^2 = r^2$, centre (h, k), radius r

Completing the square Add (half the x-coefficient)^2 and (half the y-coefficient)^2 to both sides. $x^2 + 6x + y^2 - 4y = 12$ becomes $(x + 3)^2 + (y - 2)^2 = 25$: centre $(-3, 2)$, radius 5.

Arc and sector arc length = (θ/360°) × 2πr · sector area = (θ/360°) × πr^2. In radians: arc = rθ, sector = ½r^2θ

Degrees and radians radians = degrees × π/180 · degrees = radians × 180/π

SOH CAH TOA sin θ = opposite/hypotenuse · cos θ = adjacent/hypotenuse · tan θ = opposite/adjacent

Complementary angles $\sin x° = \cos(90° - x°)$ and $\cos x° = \sin(90° - x°)$

Similar triangles Matching angles are equal and matching sides share one ratio k. Their areas are in the ratio k^2.

Data and probability

Mean sum of the values ÷ number of values

Median the middle value once the values are in order; with an even count, the mean of the two middle values

Range largest value − smallest value

Standard deviation how spread out the values are around the mean: more spread, larger standard deviation. Adding the same number to every value does not change the standard deviation. Learn what it means rather than its formula.

Probability favourable outcomes ÷ total possible outcomes

Two-way tables "Given B" means use only B's row or column. P(A given B) = (count in both A and B) ÷ (total count of B)

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