

Supplied in Bluebook

The current official reference sheet supplies these geometry relationships. Learn when to use them; the sheet does not choose the formula for you.

Figure / fact	Supplied relationship
Circle	$A = \pi r^2$; $C = 2\pi r$
Rectangle	$A = lw$
Triangle	$A = bh/2$; h is perpendicular to the base
Right triangle	$a^2 + b^2 = c^2$; c is the hypotenuse
30°-60°-90° triangle	Opposite-side ratio 1 : $\sqrt{3}$: 2
45°-45°-90° triangle	Opposite-side ratio 1 : 1 : $\sqrt{2}$
Rectangular prism	$V = lwh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = 4\pi r^3/3$
Cone	$V = \pi r^2 h/3$
Rectangular pyramid	$V = lwh/3$
Full circle	360° or 2π radians
Triangle angles	Angle measures sum to 180°

Check dimensions and units

Match the figure’s labels before substituting. Area uses square units; volume uses cubic units. A slanted triangle side is not automatically its height.

Algebra to recall

These additional relationships do not all appear on the geometry sheet. Keep their conditions and the requested quantity in view.

Task	Relationship / condition
Slope	$m = (y_2 - y_1)/(x_2 - x_1)$, for $x_2 \neq x_1$
Nonvertical line	$y = mx + b$; $y - y_1 = m(x - x_1)$
Quadratic roots	$x = (-b \pm \sqrt{b^2 - 4ac})/(2a)$, $a \neq 0$
Quadratic vertex	$x = -b/(2a)$; substitute to get y
Discriminant	$b^2 - 4ac > 0$: two real roots; $= 0$: one repeated real root; < 0 : no real roots
Quadratic root relations	$r_1 + r_2 = -b/a$; $r_1 r_2 = c/a$
Difference of squares	$u^2 - v^2 = (u - v)(u + v)$
Powers, same base	$x^a x^b = x^{a+b}$; $x^a/x^b = x^{a-b}$, where defined

Checked example: quadratic maximum

$-2t^2 + 12t + 5 = -2(t - 3)^2 + 23$. Over $0 \leq t \leq 6$, the maximum is 23 at $t = 3$. Substitution confirms $-18 + 36 + 5 = 23$.

Checked example: cancellation and domain

For $x \neq 4$, $(x^2 - 16)/(x - 4) = (x - 4)(x + 4)/(x - 4) = x + 4$. The original restriction $x \neq 4$ remains.

Percents, data and probability

Identify the base quantity, the time period and the group from which an outcome is selected.

Task	Relationship / condition
Percent change	$(\text{new} - \text{original}) / \text{original} \times 100\%$, original $\neq 0$
Increase or decrease	Multiply by $1 + p/100$ or $1 - p/100$
Repeated growth	$A(t) = A_0(1 + r)^t$, decimal rate r per period
Arithmetic mean	Sum of values / number of values
Weighted mean	Sum of (value $\times$ count) / total count
Equally likely outcomes	Probability = favorable outcomes / total outcomes
Conditional probability	Restrict the denominator to the stated condition first

Checked example: successive changes

A 20% increase followed by a 20% decrease multiplies by $1.20 \times 0.80 = 0.96$. The final value is 96% of the original, a net decrease of 4%. Equal rates do not cancel when the bases differ.

Checked example: conditional probability

Among 28 art students, 18 are in grade 11. The chance that an art student is in grade 11 is $18/28 = 9/14$. Do not divide by the count of all students when the choice is restricted to art students.

Model limits

A regression describes a chosen fit. A prediction outside the observed range is extrapolation. Association alone does not establish causation.

Geometry and trigonometry

Additional relationships, original examples and the official source for the supplied reference sheet.

Task	Relationship / condition
Circle equation	$(x - h)^2 + (y - k)^2 = r^2$; center (h,k) , radius $r > 0$
Distance	$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Midpoint	$((x_1 + x_2)/2, (y_1 + y_2)/2)$
Arc length	$(\theta/360) \times 2\pi r$ for θ in degrees; $r\theta$ in radians
Sector area	$(\theta/360) \times \pi r^2$ for θ in degrees
Right-triangle ratios	$\sin = \text{opposite/hypotenuse}$; $\cos = \text{adjacent/hypotenuse}$; $\tan = \text{opposite/adjacent}$
Similar figures	Lengths scale by k ; areas by k^2 ; volumes by k^3

Checked examples

With radius 6 and angle 90° , arc length is 3π and sector area is 9π . A right triangle with legs 8 and 15 has hypotenuse $\sqrt{289} = 17$. Relative to the angle opposite the 15-unit side, sine is $15/17$.

Official supplied-sheet source

College Board, Fall 2026 SAT School Day Bluebook Test Directions, reference sheet (page 8). peaksat.com/resources/sat-math-formulas includes the official source link. This is an original PeakSAT teaching reference, not an official College Board document.