

Grade 8 AIMS Reference Sheet

Use 3.14 or $\frac{22}{7}$ for π .

Plane Figures: Perimeters and Areas

Name	Notation	Circumference (C) Perimeter (P)	Area (A)
Circle	r = radius d = diameter	$C = \pi d$ or $C = 2\pi r$	$A = \pi r^2$
Parallelogram	a, b = sides h = height	$P = 2(a + b)$	$A = bh$
Rectangle	l = length w = width	$P = 2(l + w)$	$A = lw$
Trapezoid	a, b, c, d = sides b_1 = long base b_2 = short base h = height	$P = a + b + c + d$	$A = \frac{1}{2}h(b_1 + b_2)$
Triangle	a, b, c = sides h = height	$P = a + b + c$	$A = \frac{1}{2}bh$ or $A = \frac{bh}{2}$

Geometric Solids: Volumes and Surface Areas

Name	Notation	Volume (V)	Surface Area (SA)
Rectangular Prism	l = length w = width h = height	$V = lwh$	$SA = 2lw + 2lh + 2wh$
Right Cylinder	r = radius h = height	$V = \pi r^2 h$	$SA = 2\pi r^2 + 2\pi r h$
Right Prism	B = area of the base h = height P = perimeter of the base	$V = Bh$	$SA = 2B + Ph$

Grade 8 AIMS Reference Sheet

Coordinate Geometry and Linear Equation Forms

Given: Points $S(x_1, y_1), T(x_2, y_2)$

Midpoint between two points: $\text{Midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

Slope of line through two points: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Point-Slope Form: $y - y_1 = m(x - x_1)$

Standard or General Form: $Ax + By = C$

Slope-Intercept Form: $y = mx + b$

Additional Formulas

Distance, Rate, Time Formula:
 $d = \text{distance}, r = \text{rate}, t = \text{time}$
 $d = rt$

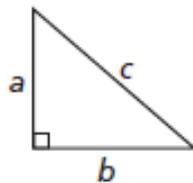
Sum of the measures of the interior angles
of a convex polygon with n sides:
 $S = (n - 2)(180^\circ)$

Simple Interest Formulas: $I = \text{interest}, P = \text{principal},$
 $r = \text{annual interest rate in decimal form}, t = \text{time in years}, A = \text{total amount after time } t$
 $I = Prt$
 $A = P(1 + rt)$

Density = $\frac{\text{mass}}{\text{volume}}$

Population density = $\frac{\text{number of people}}{\text{unit of area}}$

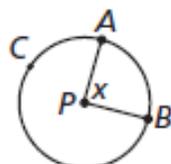
Pythagorean Theorem:



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

Angle Formulas

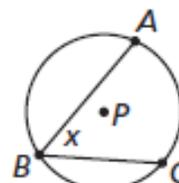
Central Angle Formula:



$$m\angle x = m\widehat{AB}$$

where P is the center of the circle.

Inscribed Angle Formula:



$$m\angle x = \frac{1}{2} m\widehat{AC}$$

where P is the center of the circle.