

MIDDLE SCHOOL MATHEMATICS FORMULAS

Formula	Description
$V = \frac{1}{3} Bh$	Volume of a right cone and a pyramid
$V = Bh$	Volume of a cylinder and prism
$V = \frac{4}{3} \pi r^3$	Volume of a sphere
$A = 2\pi rh + 2\pi r^2$	Surface area of a cylinder
$A = 4\pi r^2$	Surface area of a sphere
$A = \pi r \sqrt{r^2 + h^2} = \pi r \ell$	Lateral surface area of a right circular cone
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	Distance formula
$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$	Midpoint formula
$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	Quadratic formula
$S_n = \frac{n}{2} [2a_1 + (n - 1)d] = \frac{n(a_1 + a_n)}{2}$	Sum of an arithmetic series
$S_n = \frac{a(1 - r^n)}{1 - r}$	Sum of geometric series
$\sum_{n=0}^{\infty} ar^n = \frac{a}{1 - r}, r < 1$	Sum of an infinite geometric series
\bar{A} is the complement of set A	Set theory
${}_n P_r = P(n, r) = \frac{n!}{(n - r)!}$	Permutations
${}_n C_r = C(n, r) = \frac{n!}{(n - r)! r!}$	Combinations
$z = \frac{x - \bar{x}}{s}$	Standard score