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
$\sum_{n=0}^{\infty} ar^n = \frac{a}{1-r}\ ,\ \lvert r\rvert < 1$	Sum of an infinite geometric series
$\overline{A}$ is the complement of set A	Set theory
${}_nP_r = P(n,r) = \frac{n!}{(n-r)!}$	Permutations
${}_nC_r = C(n,r) = \frac{n!}{(n-r)!r!}$	Combinations
$z = \frac{x - \overline{x}}{s}$	Standard score
$P(t) = P(1 + r)^t$	Compound interest