

Mathematics 1 Reference Sheet

Lines

Standard Form	$Ax + By = C$	A , B , and C are constants, where $A \neq 0$ or $B \neq 0$.
Slope-Intercept Form	$y = mx + b$	m = slope
Point-Slope Form	$y - y_1 = m(x - x_1)$	b = y -intercept
Slope	$m = \frac{y_2 - y_1}{x_2 - x_1}$	(x_1, y_1) and (x_2, y_2) are 2 points.

Quadratics

General Form	$ax^2 + bx + c = 0$	a , b , and c are constants, where $a \neq 0$.
Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	

Coordinate Geometry

Midpoint	$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$	(x_1, y_1) and (x_2, y_2) are 2 points.
Distance	$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	

Area, Volume, and Surface Area of Polygons and Solids

Triangle	$A = \frac{1}{2}bh$	$A = \text{area}$
Parallelogram	$A = bh$	$b = \text{base}$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$	$h = \text{height}$
Regular Polygon	$A = \frac{1}{2}ap$	$a = \text{apothem}$
Prism	$V = Bh$	$p = \text{perimeter}$
Right Prism	$SA = 2B + Ph$	$V = \text{volume}$
Circular Cylinder	$V = \pi r^2h$	$B = \text{area of base}$
Right Circular Cylinder	$SA = 2\pi r^2 + 2\pi rh$	$SA = \text{surface area}$
Pyramid	$V = \frac{1}{3}Bh$	$P = \text{perimeter of base}$
Right Pyramid	$SA = B + \frac{1}{2}Ps$	$r = \text{radius}$
Circular Cone	$V = \frac{1}{3}\pi r^2h$	$s = \text{slant height}$
Right Circular Cone	$SA = \pi r^2 + \pi rs$	$\pi \approx 3.14$
Sphere	$V = \frac{4}{3}\pi r^3$	
	$SA = 4\pi r^2$	

Interior Angles of Polygons

Degree Measure in a Regular Polygon	$\frac{180(n-2)}{n}$	$n = \text{number of sides}$
Sum of Degree Measures in a Polygon	$180(n-2)$	

Circles

Center-Radius Form

$$(x - h)^2 + (y - k)^2 = r^2$$

center (h, k)

Area

$$A = \pi r^2$$

r = radius

Circumference

$$C = \pi d = 2\pi r$$

A = area

Area of Sector

$$A = \frac{\theta}{360} \pi r^2$$

C = circumference

d = diameter

θ = degree measure of central angle

$$\pi \approx 3.14$$

Right Triangles

Pythagorean Theorem

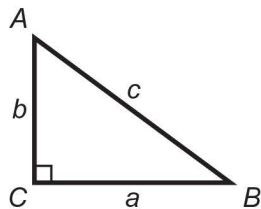
$$a^2 + b^2 = c^2$$

Trigonometric Ratios

$$\sin A = \frac{a}{c}$$

$$\cos A = \frac{b}{c}$$

$$\tan A = \frac{a}{b}$$



Sequence and Series

Arithmetic Sequence

$$a_n = a_1 + (n - 1)d$$

n = term number

Arithmetic Series

$$s_n = \frac{n}{2}(a_1 + a_n)$$

a_n = n th term

d = common difference

s_n = sum of the first n terms

Interest

Simple Interest

$$I = prt$$

I = interest

Compound Interest

$$A = p\left(1 + \frac{r}{n}\right)^{nt}$$

p = principal

r = annual interest rate

t = time in years

A = amount of money after
 t years

n = compound periods
per year

Miscellaneous

Distance, Rate, Time

$$D = rt$$

D = distance

Direct Variation
(y varies directly with x)

$$y = kx$$

r = rate

t = time

Indirect Variation
(y varies indirectly with x)

$$y = \frac{k}{x}$$

k = variation constant

Key to Symbols

$\triangle ABC$	triangle ABC
$\angle ABC$	angle ABC
$m\angle ABC$	degree measure of $\angle ABC$
\longleftrightarrow	
\overleftrightarrow{AB}	line AB
\overline{AB}	line segment AB
AB	length of \overline{AB}
Circle O	circle with center point O
\widehat{AB}	arc AB
\perp	is perpendicular to
\parallel	is parallel to
\cong	is congruent to
\sim	is similar to
\approx	is approximately equal to