

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

Right Circular Cone $SA = \pi r^2 + \pi rs$

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 $A = \pi r^2$ $r = \text{radius}$

Circumference $C = \pi d = 2\pi r$ $A = \text{area}$

Area of Sector $A = \frac{\theta}{360}\pi r^2$ $C = \text{circumference}$
 $d = \text{diameter}$

$\theta = \text{degree measure of central angle}$

$\pi \approx 3.14$

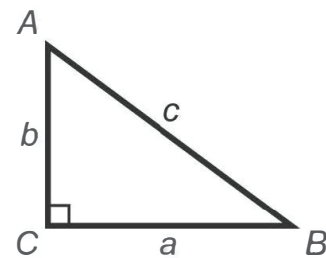
Right Triangles

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 $a_n = a_1 + (n-1)d$ $n = \text{term number}$

Arithmetic Series $s_n = \frac{n}{2}(a_1 + a_n)$ $a_n = \text{nth term}$
 $d = \text{common difference}$

$s_n = \text{sum of the first } n \text{ terms}$

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 $\angle ABC$

\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