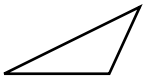
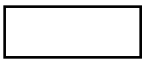
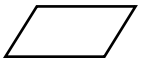
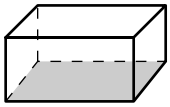
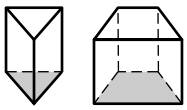
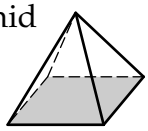
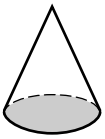
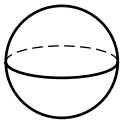
Formula Reference Sheet

Shape	Formulas for Area (A) and Circumference (C)
Triangle 	$A = \frac{1}{2}bh = \frac{1}{2} \times$ base $\times$ height
Rectangle 	$A = lw =$ length $\times$ width
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h = \frac{1}{2} \times$ sum of bases $\times$ height
Parallelogram 	$A = bh =$ base $\times$ height
Circle	$A = \pi r^2 = \pi \times$ square of radius $C = 2\pi r = 2 \times \pi \times$ radius $C = \pi d = \pi \times$ diameter
Figure	**Formulas for Volume (V) and Surface Area (SA)**
Rectangular Prism 	$V = lwh =$ length $\times$ width $\times$ height $SA = 2lw + 2hw + 2lh$ $=$ 2(length $\times$ width) + 2(height $\times$ width) + 2(length $\times$ height)
General Prisms 	$V = Bh =$ area of base $\times$ height $SA =$ sum of the areas of the faces
Right Circular Cylinder	$V = Bh =$ area of base $\times$ height $SA = 2B + Ch =$ (2 $\times$ area of base) + (circumference $\times$ height)
Square Pyramid 	$V = \frac{1}{3}Bh = \frac{1}{3} \times$ area of base $\times$ height $SA = B + \frac{1}{2}P\ell$ $=$ area of base + ($\frac{1}{2} \times$ perimeter of base $\times$ slant height)
Right Circular Cone 	$V = \frac{1}{3}Bh = \frac{1}{3} \times$ area of base $\times$ height $SA = B + \frac{1}{2}C\ell =$ area of base + ($\frac{1}{2} \times$ circumference $\times$ slant height)
Sphere 	$V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times \pi \times$ cube of radius $SA = 4\pi r^2 = 4 \times \pi \times$ square of radius

Equations of a Line

Standard Form:

$Ax + By = C$

where A and B are not both zero

Slope-Intercept Form:

$y = mx + b$ or $y = b + mx$

where m = slope and b = y-intercept

Point-Slope Form:

$y - y_1 = m(x - x_1)$

where m = slope, (x_1, y_1) = point on line

Coordinate Geometry Formulas

Let (x_1, y_1) and (x_2, y_2) be two points in the plane.

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} \text{ where } x_2 \neq x_1$$

$$\text{midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$\text{distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Distance Traveled

$$d = rt$$

distance = rate × time

Simple Interest

$$I = prt$$

interest = principal × interest rate × time

Polygon Angle Formulas

Sum of degree measures of the interior angles of a polygon:

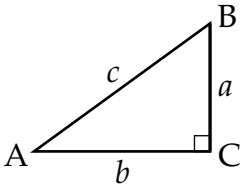
$$180(n - 2)$$

Degree measure of an interior angle of a regular polygon:

$$\frac{180(n - 2)}{n}$$

where n is the number of sides of the polygon

Formulas for Right Triangles

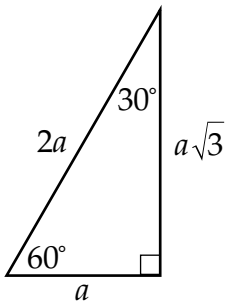
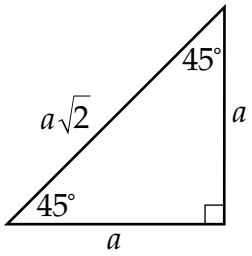


Pythagorean Theorem:

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

$$\sin A = \frac{a}{c} = \left(\frac{\text{opposite}}{\text{hypotenuse}} \right)$$

$$\cos A = \frac{b}{c} = \left(\frac{\text{adjacent}}{\text{hypotenuse}} \right)$$

$$\tan A = \frac{a}{b} = \left(\frac{\text{opposite}}{\text{adjacent}} \right)$$

Special Triangles