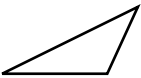


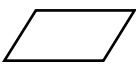

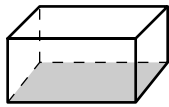
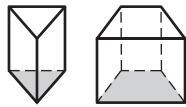

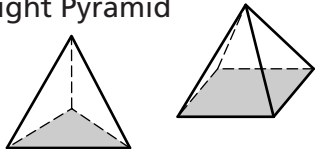
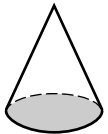
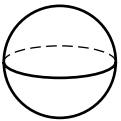


Wisconsin Mathematics Formula Reference Sheet

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

Equations of a Line

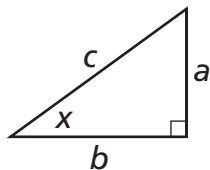
Slope-Intercept Form: $y = mx + b$
where m = slope and b = y-intercept

Point-Slope Form: $y - y_1 = m(x - x_1)$
where m = slope, (x_1, y_1) = point on line

Combinations and Permutations

$${}^n C_r = \frac{n!}{r!(n-r)!} \quad {}^n P_r = \frac{n!}{(n-r)!}$$

Formulas for Right Triangles



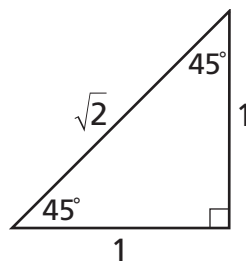
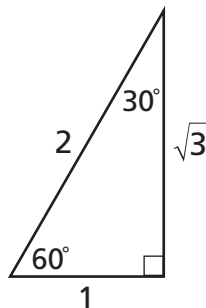
$$\sin x = \frac{a}{c} = \left(\frac{\text{opp}}{\text{hyp}} \right)$$

$$\cos x = \frac{b}{c} = \left(\frac{\text{adj}}{\text{hyp}} \right)$$

$$\tan x = \frac{a}{b} = \left(\frac{\text{opp}}{\text{adj}} \right)$$

Pythagorean Theorem: $a^2 + b^2 = c^2$

Special Right Triangles



Coordinate Geometry Formulas

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

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

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

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

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

Interest Formulas

Simple Interest: $A = P(1 + rt)$

Compound Interest: $A = P\left(1 + \frac{r}{n}\right)^{nt}$

A = amount (including interest)

P = principal

r = interest rate (expressed as a decimal)

n = number of compoundings per year

t = number of years

Quadratic Equations

Let $ax^2 + bx + c = 0$, where $a \neq 0$.

$$\text{Then } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\text{x-coordinate of vertex} = -\frac{b}{2a}$$

Distance Traveled

$$d = rt$$

distance = rate \times time