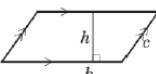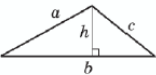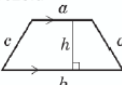## Area, Surface Area, and Volume Formulas for most shapes:

Area Formulas

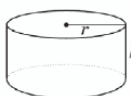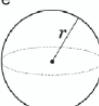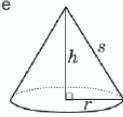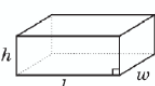| Geometric Figure	Formula
Rectangle	$A = lw$
Parallelogram	$A = bh$
Triangle	$A = \dfrac{bh}{2}$
Trapezoid	$A = \dfrac{(a+b)h}{2}$
Circle	$A = \pi r^2$

For Circumference of Circles you can use either formula here:

$C = \pi d$

or

$C = 2\pi r$

Geometric Figure	Surface Area	Volume
Cylinder	$SA = 2\pi r^2 + 2\pi rh$	$V = \pi r^2 h$
Sphere	$SA = 4\pi r^2$	$V = \dfrac{4\pi r^3}{3}$
Cone	$SA = \pi rs + \pi r^2$	$V = \dfrac{\pi r^2 h}{3}$
Square-based pyramid	$SA = 2bs + b^2$	$V = \dfrac{b^2 h}{3}$
Rectangular prism	$A = 2(wh + lw + lh)$ instead of this formula, just find the area of each side, and add the 6 areas up!	$V = lwh$
Triangular prism	$A_{\text{total}} = ah + bh + ch + bl$ instead of this formula, just find the area of each side, and add the 5 areas up!	$V = \dfrac{blh}{2}$

Right Triangle Formulas:

Pythagorean Theorem:

To find the hypotenuse use $c^2 = a^2 + b^2$
to find a "leg" use $a^2 = c^2 - b^2$

Conversion Chart!

Length	Imperial/Metric Lengths
1 foot = 12 inches	1 inch = 2.54 cm
1 yd = 3 feet	1 mile = 1.609 km
1 miles = 1 760 yards	1 yard = 0.9144 meters
1 yard = 36 inches	1 foot = 0.3048 meters
1 mile = 63 360 inches	1 foot = 30.48 cm
1 mile = 5 280 feet	

Mass/Weight	Imperial/Metric Mass/Weight
1 pound = 16 ounces	1 kg = 2.2046 pounds
1 ton = 2000 pounds	1 kg = 35.273 ounces (oz)
	1000g=35.273 ounces (oz)

Capacity/Volume	Imperial/Metric Capacity/Volume
1 gallon = 4 quarts	1 pint = 0.473 L
2 pints = 1 quart	1 gallon = 3.785 L
	1 quart = 0.9463 L
	1 gallon = 128 fluid ounces (fl. oz)
	1L = 4 Cups

A Handy Decimal Jumper Chart for Metric Conversions!

km/hm/dam/ m /dm/cm/mm —— distance

kL/hL/daL / L /dL/cL/mL —— volume

kg/hg/dag/ g /dg/cg/mg —— weight

Trigonometry of Right Triangles: Remember SOH CAH TOA?

tangent = $\dfrac{\text{opposite}}{\text{adjacent}}$

cosine = $\dfrac{\text{adjacent}}{\text{hypotenuse}}$

sin = $\dfrac{\text{opposite}}{\text{hypotenuse}}$

The Sine and Cosine Law, for non-right Triangles:

First try the **Sine Law** $\dfrac{a}{SinA} = \dfrac{b}{SinB}$ and if that doesn't work try the **Cosine Law!**

Cosine Law for finding a side: $c^2 = a^2 + b^2 - 2abCosC$

Cosine Law for finding an angle: $cosC = \dfrac{a^2 + b^2 - c^2}{2ab}$