

## UNIT CONVERSION

	Common Imperial	Imperial and Metric	Metric
<b>Length</b>	1 mile = 1760 yards 1 mile = 5280 feet 1 yard = 3 feet 1 yard = 36 inches 1 foot = 12 inches	1 mile $\approx$ 1.609 km 1 yard $\approx$ 0.9144 m 1 foot $\approx$ 0.3048 m 1 inch $\approx$ 2.54 cm	1 km = 1000 m 1 m = 100 cm 1 cm = 10 mm
<b>Mass (Weight)</b>	1 ton = 2000 pounds 1 pound = 16 ounces	1 pound $\approx$ 0.454 kg 1 ounce $\approx$ 28.35 g	1 t = 1000 kg 1 kg = 1000 g
<b>Common Abbreviations</b>	mile = mi yard = yd ton = ton feet = ' or ft inch = " or in pound = lb ounce = oz		kilometre = km metre = m centimetre = cm millimetre = mm tonne (metric ton) = t gram = g

## FORMULAE

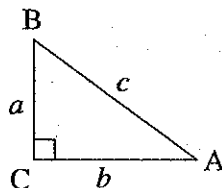
(Put your calculator in Degree Mode)

- Right triangles.

$$\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan A = \frac{\text{opposite}}{\text{adjacent}}$$

**Pythagorean Theorem.**

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

$$\text{distance} = \text{speed} \times \text{time}$$

- The equation of a line:

$$y = mx + b$$

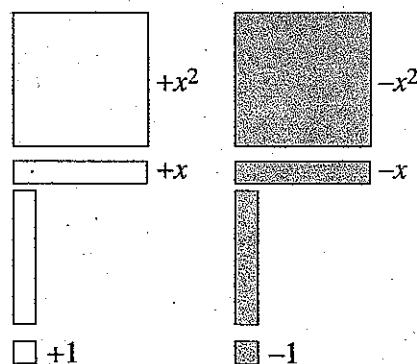
$$Ax + By + C = 0$$

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

- The slope of a line:

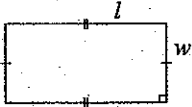
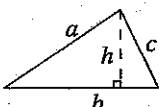
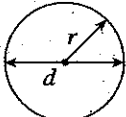
$$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

## Math Tiles Legend

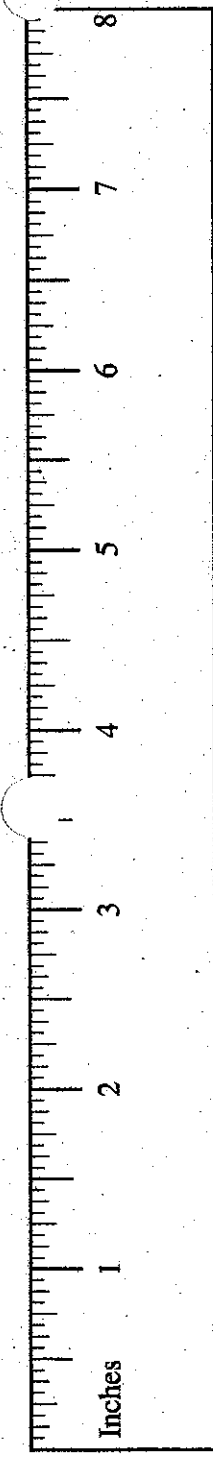


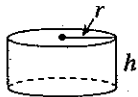
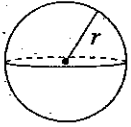
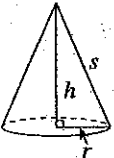
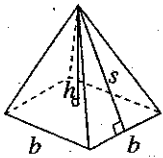
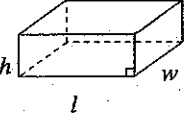
## GEOMETRIC FORMULAE

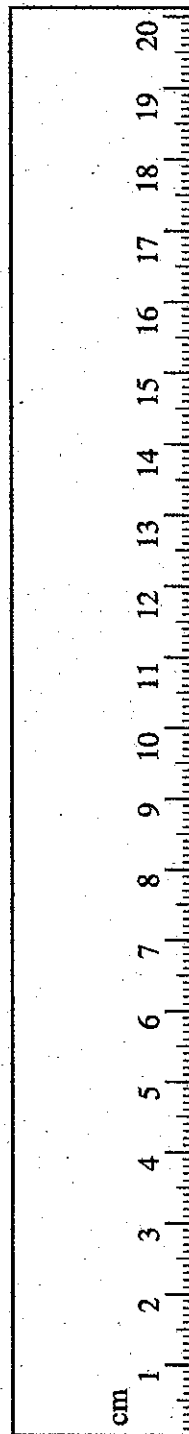
Key Legend	
$l$ = length	$P$ = perimeter
$w$ = width	$C$ = circumference
$b$ = base	$A$ = area
$h$ = height	$SA$ = surface area
$s$ = slant height	$V$ = volume
$r$ = radius	
$d$ = diameter	

Geometric Figure	Perimeter	Area
Rectangle 	$P = 2l + 2w$ or $P = 2(l + w)$	$A = lw$
Triangle 	$P = a + b + c$	$A = \frac{bh}{2}$
Circle 	$C = \pi d$ or $C = 2\pi r$	$A = \pi r^2$

**NOTE:** Use the value of  $\pi$  programmed in your calculator rather than the approximation of 3.14.



Geometric Figure	Surface Area	Volume
Cylinder 	$A_{top} = \pi r^2$ $A_{base} = \pi r^2$ $A_{side} = 2\pi r h$ $SA = 2\pi r^2 + 2\pi r h$	$V = (\text{area of base}) \times h$
Sphere 	$SA = 4\pi r^2$ <b>or</b> $SA = \pi d^2$	$V = \frac{4}{3}\pi r^3$
Cone 	$A_{side} = \pi r s$ $A_{base} = \pi r^2$ $SA = \pi r^2 + \pi r s$	$V = \frac{1}{3} \times (\text{area of base}) \times h$
Square-Based Pyramid 	$A_{triangle} = \frac{1}{2} b s$ (for each triangle) $A_{base} = b^2$ $SA = 2bs + b^2$	$V = \frac{1}{3} \times (\text{area of base}) \times h$
Rectangular Prism 	$SA = wh + wh + lw + lw + lh + lh$ <b>or</b> $SA = 2(wh + lw + lh)$	$V = (\text{area of base}) \times h$
General Right Prism	$SA =$ the sum of the areas of all the faces	$V = (\text{area of base}) \times h$
General Pyramid	$SA =$ the sum of the areas of all the faces	$V = \frac{1}{3} \times (\text{area of base}) \times h$



**NOTE:** Use the value of  $\pi$  programmed in your calculator rather than the approximation of 3.14.