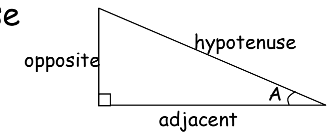
Geometry Formulas

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

Conversion factors:
1 yd = 3 ft = 36 inches
1 m = 100 cm = 1000 mm
1 km = 1000 m

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



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

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

A = area; *b* = base; *C* = circumference; *h* = height;
l = length; *r* = radius; *SA* = surface area; *V* = volume

Circle: $C = 2\pi r$; $A = \pi r^2$

Rectangle: $P = 2b + 2h$; $A = bh$

Triangle Area Formulas:

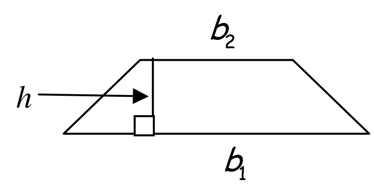
$A = \dfrac{1}{2}bh$

Heron's Formula:

$A = \sqrt{s(s-a)(s-b)(s-c)}$

where $s = \dfrac{1}{2}(a+b+c)$

Trapezoid: $A = \dfrac{1}{2}(b_1 + b_2)h$



Surface Area = the sum of the areas of each exterior surface of the 3-dimensional figure

Cylinder: $V = \pi r^2 h$; $SA = 2\pi r(r+h)$

Sphere: $V = \dfrac{4}{3}\pi r^3$; $SA = 4\pi r^2$

Solid with matching base and top (equal cross sections):

$V = (\text{area of base}) * h$

Cone Volume: $V = \dfrac{1}{3}\pi r^2 h$

Pyramid Volume:

$V = \dfrac{1}{3}(\text{area of base}) * h$