

# 3D - SHAPES

## SPHERE

Volume =  $\frac{4\pi r^3}{3}$   
Surface area =  $4\pi r^2$



## PYRAMID

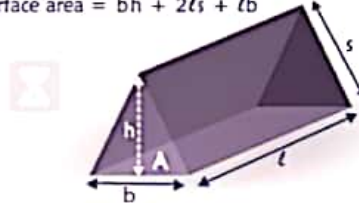
Volume of a general pyramid =  $\frac{1}{3} Ah$

where:  
A = area of base  
h = height



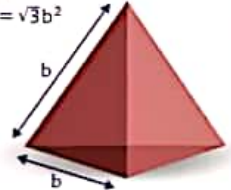
## TRIANGULAR PRISM

Volume =  $A\ell$  or  $\frac{1}{2} bh\ell$   
Surface area =  $bh + 2\ell s + \ell b$



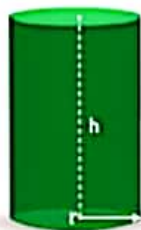
## REGULAR TETRAHEDRON

Volume =  $\frac{b^3}{6\sqrt{2}}$   
Surface area =  $\sqrt{3}b^2$



## RIGHT CYLINDER

Volume =  $\pi r^2 h$   
Surface area =  $2\pi r(r + h)$



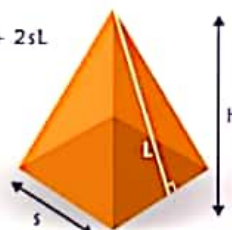
## CUBE

Volume =  $s^3$   
Surface area =  $6s^2$



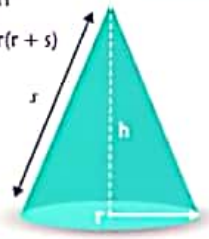
## SQUARE-BASED PYRAMID

Volume =  $\frac{1}{3} s^2 h$   
Surface area =  $s^2 + 2sL$



## RIGHT CIRCULAR CONE

Volume =  $\frac{1}{3} \pi r^2 h$   
Surface area =  $\pi r(r + s)$



## PENTAGONAL PRISM

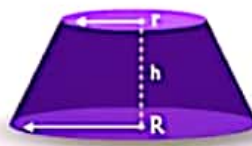
Volume of any prism =  $Ah$   
Surface area of a closed prism =  $2A + 5(h \times p)$

where:  
A = area of base  
h = height  
p = perimeter of base



## FRUSTUM OF A CONE

Volume =  $\frac{1}{3} \pi h(r^2 + rR + R^2)$   
Total Surface Area =  $\pi(r+R)\sqrt{(R-r)^2 + h^2} + \pi(r^2 + R^2)$



## CUBOID

Volume =  $\ell \times w \times h$   
Surface area =  $2\ell h + 2\ell w + 2wh$

