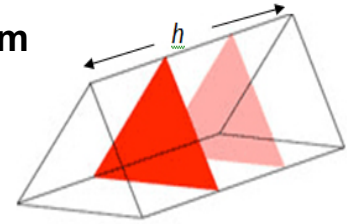


# FORMULAS FOR AREA, SURFACE AREA and VOLUME

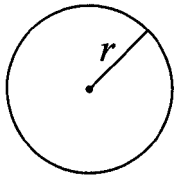
## Prism



All the cross-sections are the same, so this is a prism

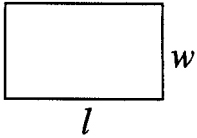
Volume of any prism =  $A_{\text{cross-section}} \times h$

## Circle



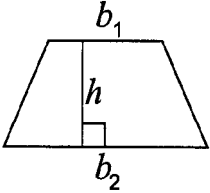
$\pi \approx 3.14$   
 Area =  $\pi r^2$   
 Circumference =  $2\pi r$

## Rectangle



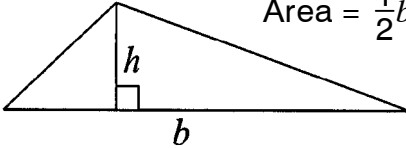
Area =  $lw$   
 Perimeter =  $2l + 2w$

## Trapezoid



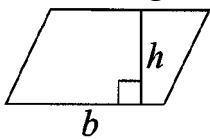
Area =  $\frac{1}{2}h(b_1 + b_2)$

## Triangle



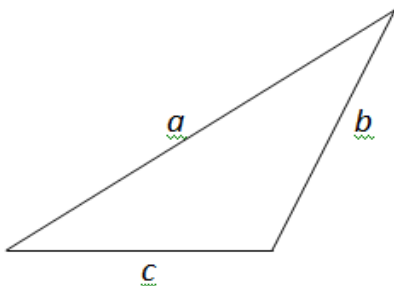
Area =  $\frac{1}{2}bh$

## Parallelogram



Area =  $bh$

## Heron's Formula for AREA

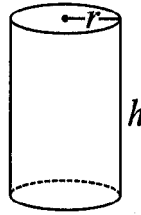


$s = \frac{1}{2}(a + b + c)$

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

**s is called the semi-perimeter**

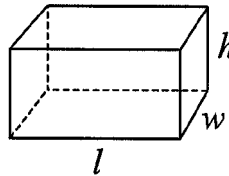
## Cylinder



Volume  $\pi r^2 h$   
 Surface Area =  $2\pi r^2 + 2\pi r h$   
 (includes lid and base)

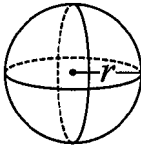
Surface area of tube alone =  $2\pi r h$

## Rectangular Solid



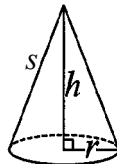
Volume =  $lwh$   
 Surface Area =  $2wl + 2lh + 2wh$

## Sphere



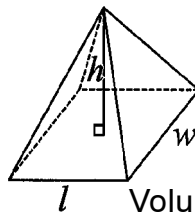
Volume =  $\frac{4}{3}\pi r^3$   
 Surface Area =  $4\pi r^2$

## Cone



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

## Rectangular Pyramid

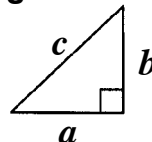


Surface area: add up areas of all faces

Volume =  $\frac{1}{3}lwh$

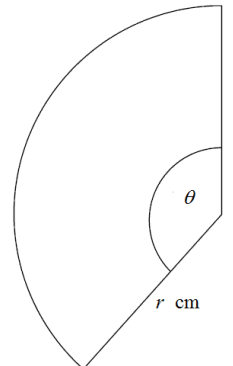
Volume of any pyramid =  $\frac{1}{3} \times \text{Area of base} \times h$

## Pythagorean Theorem



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

## Sector



Perimeter =  $2r + \frac{\theta}{360} \times 2\pi r$

Area =  $\frac{\theta}{360} \times \pi r^2$