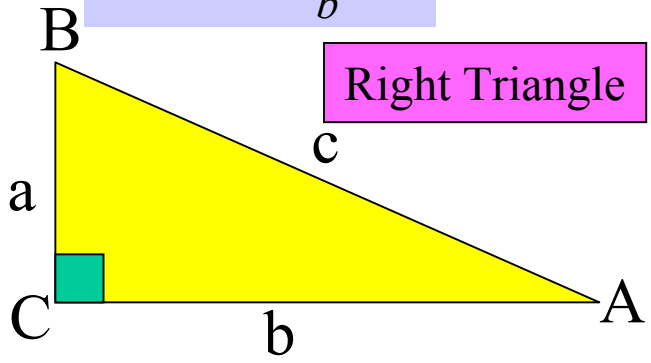
Formulas From Geometry

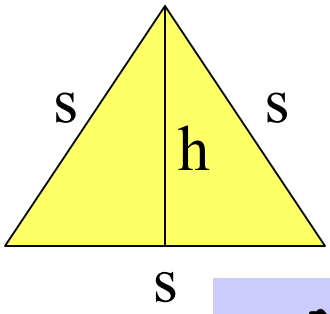
$$c^2 = a^2 + b^2$$

$$\sin A = \frac{a}{c}$$

$$\cos A = \frac{b}{c}$$

$$\tan A = \frac{a}{b}$$

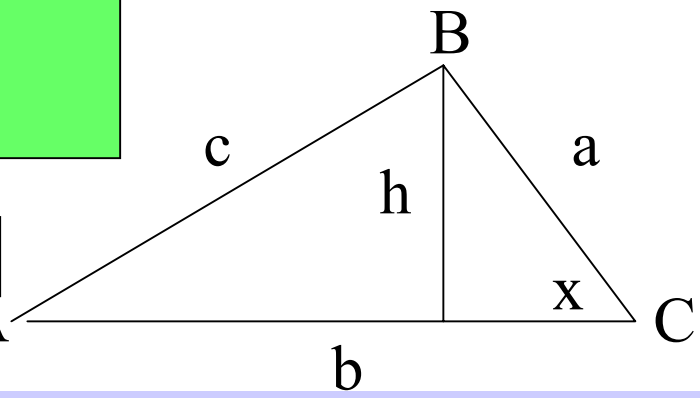




Equilateral Triangle

$$h = \frac{\sqrt{3}s}{2}$$

$$Area = \frac{\sqrt{3}s^2}{4}$$



Triangle

$$h = a\sin x$$

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

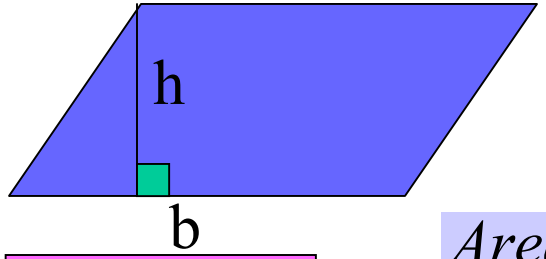
$$Area = \frac{1}{2}ab\sin x$$

$$Area = \sqrt{s(s-a)(s-b)(s-c)} \quad where \quad s = \frac{a+b+c}{2}$$

$$Area = \frac{1}{2}\frac{a^2 \sin B \sin C}{\sin A}$$

Law of Cosines: $c^2 = a^2 + b^2 - 2ab\cos C$

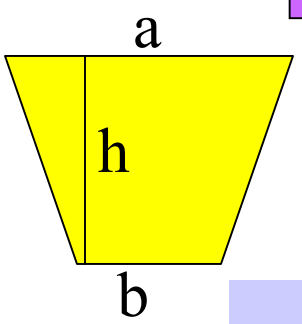
Law of Sines: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

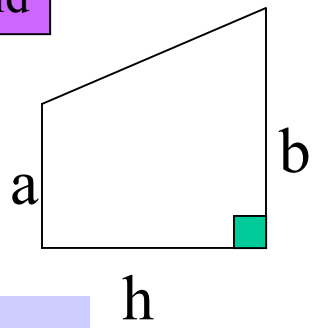


Parallelogram

$Area = bh$

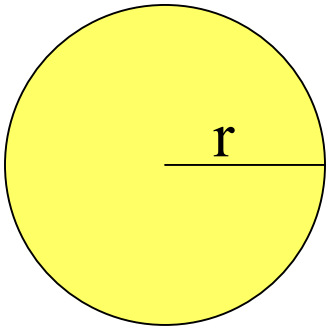
Trapezoid





$$Area = \frac{h}{2}(a+b)$$

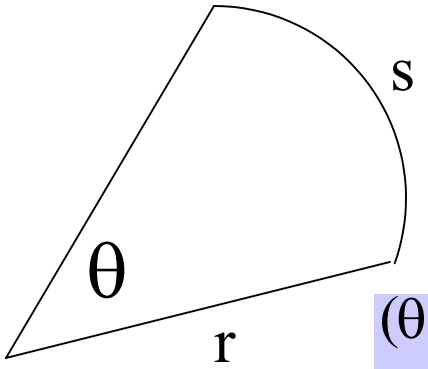
Circle



$$Area = \pi r^2$$

$$\text{Circumference} = 2\pi r = \pi d$$

Sector of a Circle

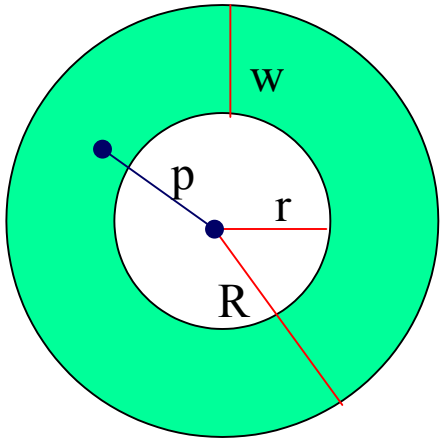


(θ in radians)

$$Area = \frac{\theta r^2}{2}$$

$$s = r\theta$$

Circular Ring



(p = average radius → $\frac{R + r}{2}$
w= average width)

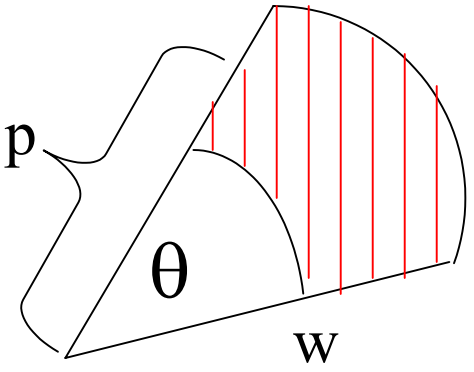
$$Area = \pi (R^2 - r^2)$$

$$Area = 2\pi pw$$

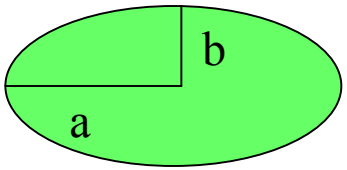
Sector of a Circular Ring

(p = average radius,
w = average width,
θ in radians)

$$Area = \theta pw$$

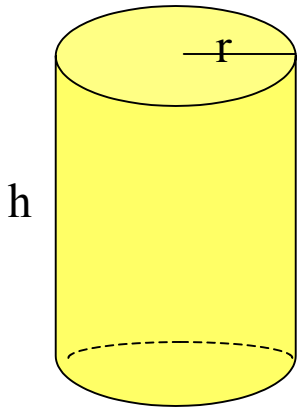


Ellipse



$$Area = \pi ab$$

$$Circumference \approx 2\pi \sqrt{\frac{a^2 + b^2}{2}}$$

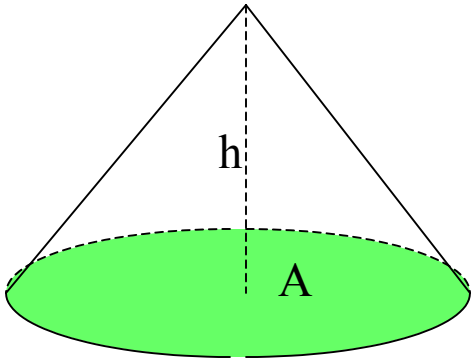


$$Volume = \pi r^2 h$$

$$LateralSurfaceArea = 2\pi rh$$

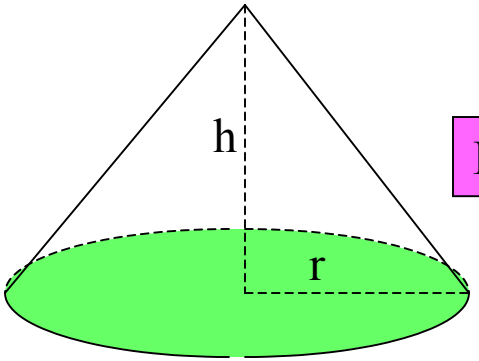
Right Circular Cylinder

Cone



$(A = \text{Area of the base})$

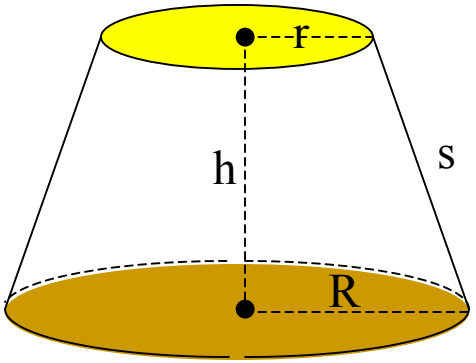
$$Volume = \frac{Ah}{3}$$



Right Circular Cone

$$Volume = \frac{\pi r^2 h}{3}$$

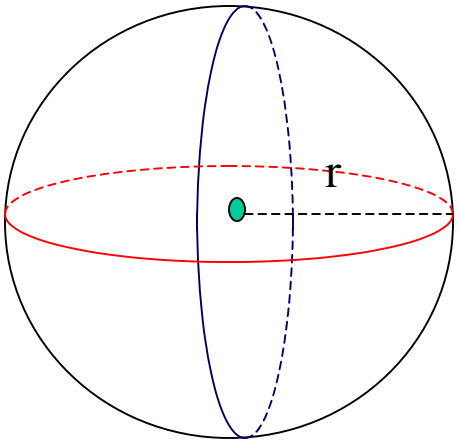
$$Lateral\ \ Surface\ \ Area = \pi r\sqrt{r^2 + h^2}$$



Frustum of Right Circular Cone

$$Volume = \frac{\pi (r^2 + rR + R^2)h}{3}$$

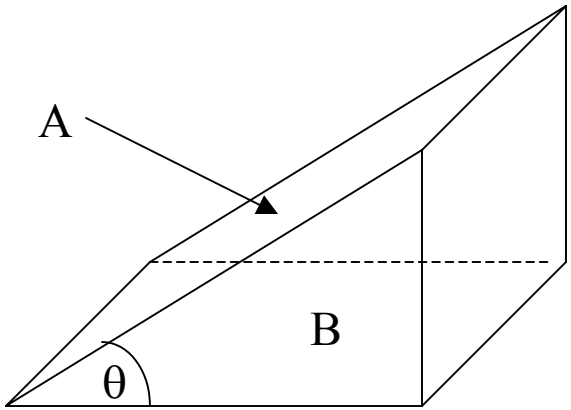
$$Lateral\ Surface\ Area = \pi s(R + r)$$



Sphere

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

$$Surface\ Area = 4\pi r^2$$



Wedge

(A = area of upper face,
B = area of base)

$$A = B\sec\theta$$