

FORMULAS FROM GEOMETRY

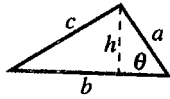
Triangle

$$h = a \sin \theta$$

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

Laws of Cosines:

$$c^2 = a^2 + b^2 - 2ab \cos \theta$$

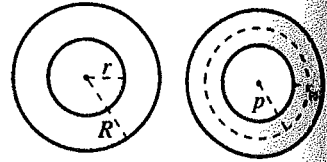


Circular Ring

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

$$= 2\pi pw$$

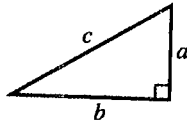
(p = average radius,
 w = width of ring)



Right Triangle

Pythagorean Theorem:

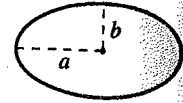
$$c^2 = a^2 + b^2$$



Ellipse

$$\text{Area} = \pi ab$$

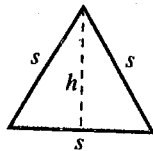
$$\text{Circumference} \approx 2\pi \sqrt{\frac{a^2 + b^2}{2}}$$



Equilateral Triangle

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

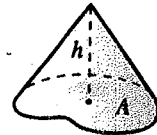
$$\text{Area} = \frac{\sqrt{3}s^2}{4}$$



Cone

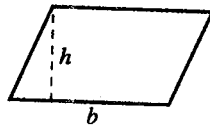
(A = area of base)

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



Parallelogram

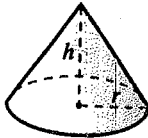
$$\text{Area} = bh$$



Right Circular Cone

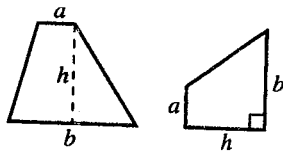
$$\text{Volume} = \frac{\pi r^2 h}{3}$$

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



Trapezoid

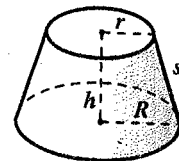
$$\text{Area} = \frac{h}{2}(a + b)$$



Frustum of Right Circular Cone

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

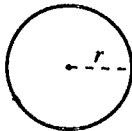
$$\text{Lateral Surface Area} = \pi s(R + r)$$



Circle

$$\text{Area} = \pi r^2$$

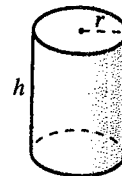
$$\text{Circumference} = 2\pi r$$



Right Circular Cylinder

$$\text{Volume} = \pi r^2 h$$

$$\text{Lateral Surface Area} = 2\pi r h$$

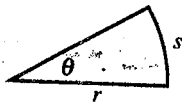


Sector of Circle

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

$$s = r\theta$$

(θ in radians)



Sphere

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

$$\text{Surface Area} = 4\pi r^2$$

