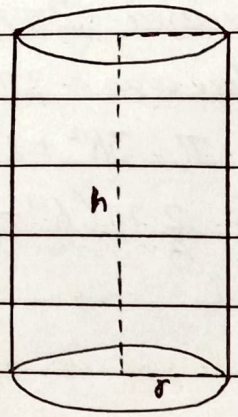
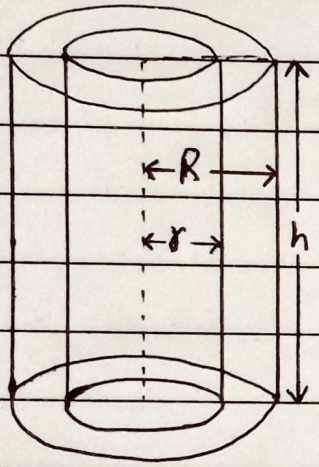
Mensuration



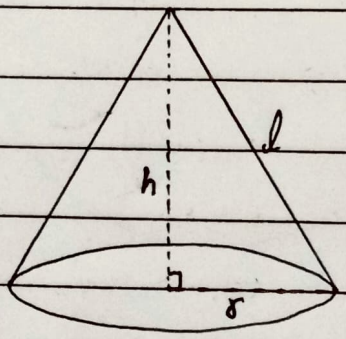
* curved/lateral surface area = $2\pi rh$
* Total surface area = $2\pi r(h+r)$
* Volume = $\pi r^2 h$

Solid Cylinder



* Thickness of cylinder = $R-r$
* Area of cross section = $\pi(R^2-r^2)$
* External curved surface area = $2\pi Rh$
* Internal curved surface area = $2\pi rh$
* Total surface area = $2\pi(Rh+rh+R^2-r^2)$
* Volume of the material = $\pi(R^2-r^2)h$

Hollow Cylinder



* curved surface area = πrl
* Total surface area = $\pi r(l+r)$
* Volume = $\frac{1}{3}\pi r^2 h$

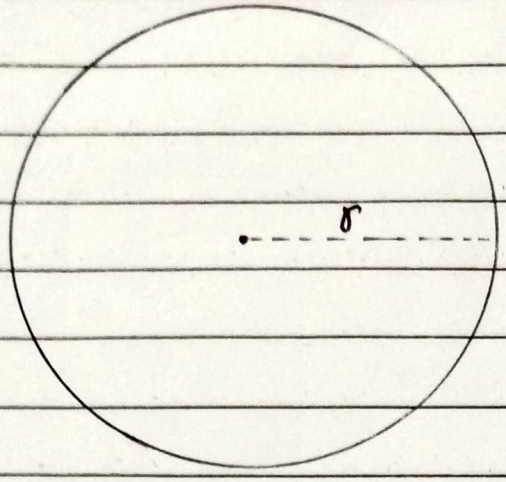
Cone

NOTE: l = Slant height

$h^2+r^2=l^2$ (Pythagoras Theorem)

$l^2=r^2+h^2$

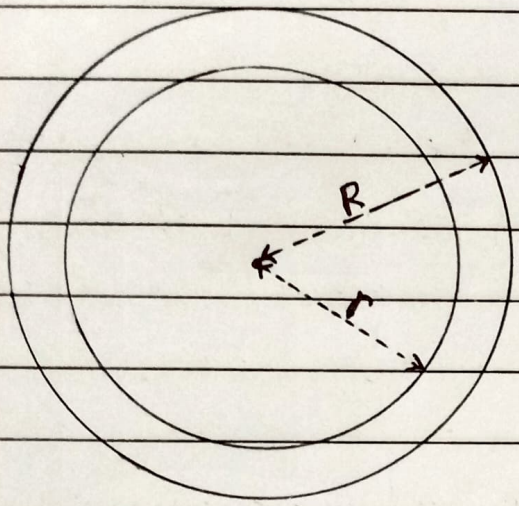
$\therefore l=\sqrt{r^2+h^2}$



* Surface area = $4\pi r^2$

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

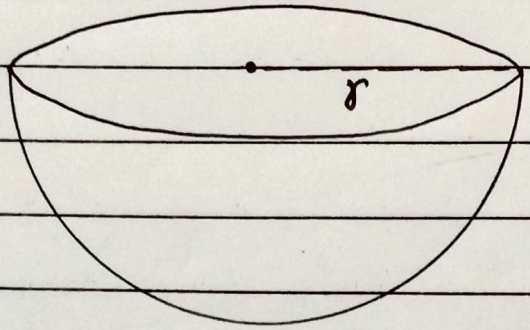
Sphere



* Thickness of shell = $R - r$

* Volume of the material = $\frac{4}{3}\pi(R^3 - r^3)$

Spherical shell

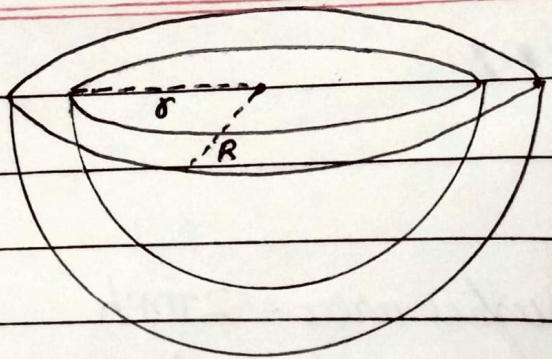


* Curved surface area = $2\pi r^2$

* Total surface area = $3\pi r^2$

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

Hemisphere



Hemispherical Shell

* Thickness of shell = $R-r$
* area of base = $\pi(R^2-r^2)$
* external curved surface area = $2\pi R^2$
* internal curved surface area = $2\pi r^2$
* total surface area = $\pi(3R^2+r^2)$
* volume of material = $\frac{2}{3}\pi(R^3-r^3)$