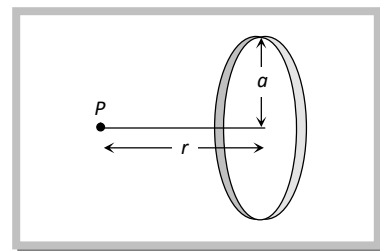


## Gravitational Potential for Different Bodies.

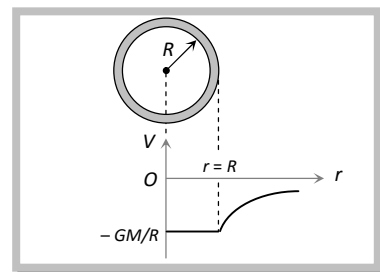
### (1) Potential due to uniform ring

At a point on its axis	At the center
$V = -\frac{GM}{\sqrt{a^2 + r^2}}$	$V = -\frac{GM}{a}$



### (2) Potential due to spherical shell

Outside the surface $r > R$	On the surface $r = R$	Inside the surface $r < R$
$V = \frac{-GM}{r}$	$V = \frac{-GM}{R}$	$V = \frac{-GM}{R}$



### (3) Potential due to uniform solid sphere

Outside the surface $r > R$	On the surface $r = R$	Inside the surface $r < R$
$V = \frac{-GM}{r}$	$V_{surface} = \frac{-GM}{R}$	$V = \frac{-GM}{2R} \left[ 3 - \left( \frac{r}{R} \right)^2 \right]$ <p>At the center (<math>r = 0</math>)</p> $V_{centre} = \frac{-3}{2} \frac{GM}{R}$ <p>(max.)</p> $V_{centre} = \frac{3}{2} V_{surface}$

