

# SPHERE and HEMISPHERE

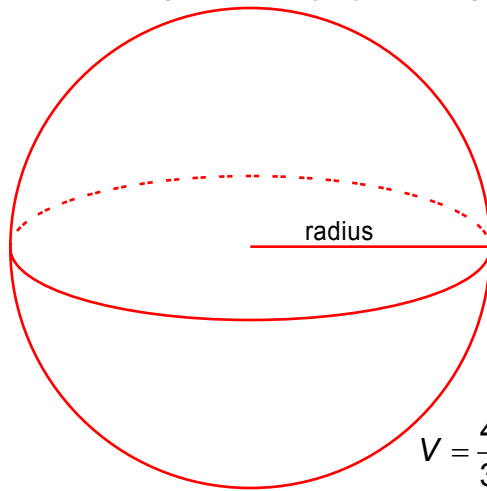
## Symbol Definitions

$r$  = Radius

$V$  = Volume

$SA$  = Surface Area

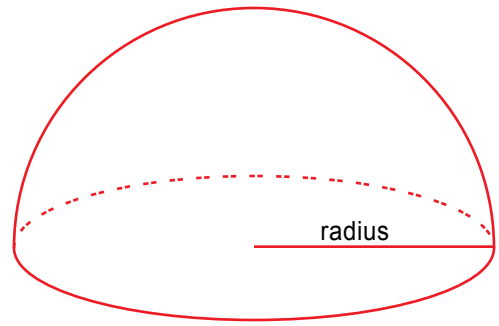
$TSA$  = Total Surface Area



$$V = \frac{4}{3}\pi r^3$$
$$= 4.19r^3$$

$$r = \sqrt[3]{\frac{3V}{4\pi}}$$

$$SA = 4\pi r^2$$



$$V = \frac{2}{3}\pi r^3$$

$$SA = 2\pi r^2$$

$$TSA = 3\pi r^2$$