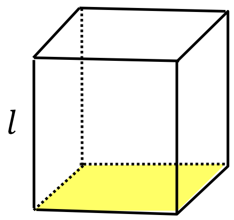
Volumi $\mathcal{V}$ e superfici $\mathcal{S}$ delle principali figure solide

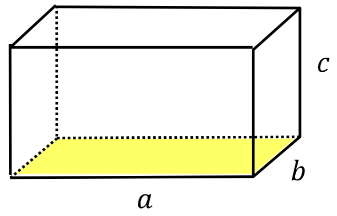
cubo



$$\mathcal{V} = l^3$$

$\mathcal{S}_B = 2l^2$ | $\mathcal{S}_L = 4l^2$

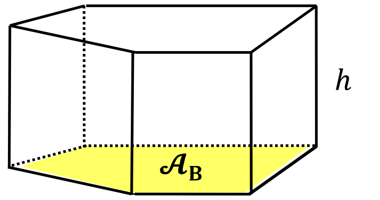
parallelepipedo rettangolo



$$\mathcal{V} = a \cdot b \cdot c$$

$\mathcal{S}_B = 2ab$ | $\mathcal{S}_L = 2(a+b)c$

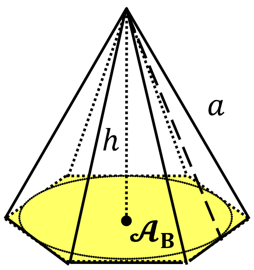
prisma retto



$$\mathcal{V} = \mathcal{A}_B \cdot h$$

$\mathcal{S}_B = 2\,\mathcal{A}_B$ | $\mathcal{S}_L = perimetro \cdot h$

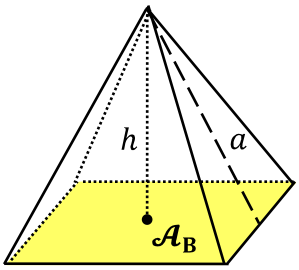
piramide retta a base regolare



$$\mathcal{V} = \frac{\mathcal{A}_B \cdot h}{3}$$

$\mathcal{S}_B = \mathcal{A}_B$ | $\mathcal{S}_L = \frac{perimetro \cdot a}{2}$

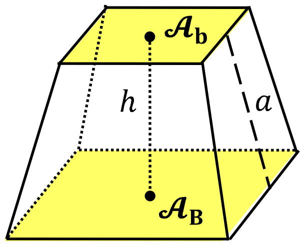
piramide retta



$$\mathcal{V} = \frac{\mathcal{A}_B \cdot h}{3}$$

$\mathcal{S}_B = \mathcal{A}_B$ | $\mathcal{S}_L =$ somma aree facce laterali

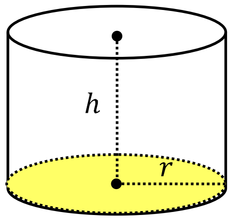
tronco di piramide



$$\mathcal{V} = \frac{1}{3}h\left(\mathcal{A}_B + \mathcal{A}_b + \sqrt{\mathcal{A}_B\mathcal{A}_b}\right)$$

$\mathcal{S}_B = \mathcal{A}_B + \mathcal{A}_b$ | $\mathcal{S}_L =$ somma aree facce laterali

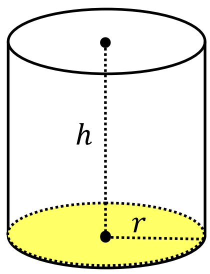
cilindro



$$\mathcal{V} = \pi\, r^2 \cdot h$$

$\mathcal{S}_B = 2\,\pi\, r^2$ | $\mathcal{S}_L = 2\,\pi\, r\, h$

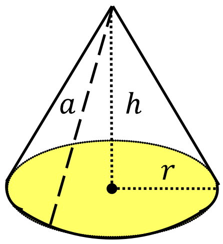
cilindro equilatero (h=2r)



$$\mathcal{V} = 2\,\pi\, r^3$$

$\mathcal{S}_B = 2\,\pi\, r^2$ | $\mathcal{S}_L = 4\,\pi\, r^2$

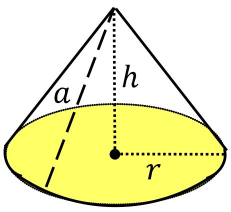
cono



$$\mathcal{V} = \frac{\pi\, r^2 \cdot h}{3}$$

$\mathcal{S}_B = \pi\, r^2$ | $\mathcal{S}_L = \pi\, r\, a$

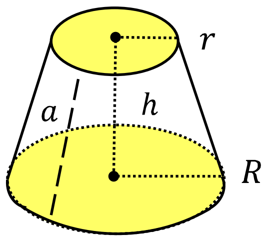
cono equilatero (a=2r $h = \sqrt{3}\,r$)



$$\mathcal{V} = \frac{\pi\, r^2 \cdot h}{3}$$

$\mathcal{S}_B = \pi\, r^2$ | $\mathcal{S}_L = 2\,\pi\, r^2$

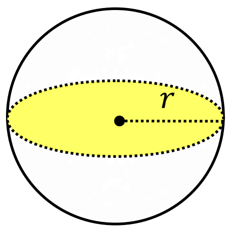
tronco di cono



$$\mathcal{V} = \frac{1}{3}\pi\, h(R^2 + r^2 + Rr)$$

$\mathcal{S}_B = \pi R^2 + \pi\, r^2$ | $\mathcal{S}_L = \pi(r+R)a$

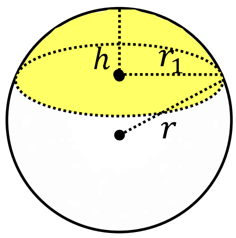
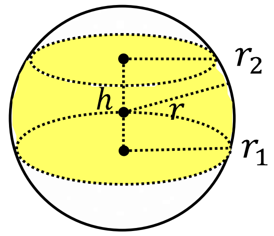
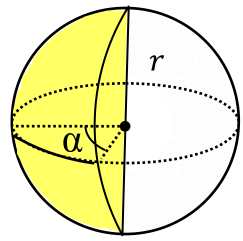
sfera

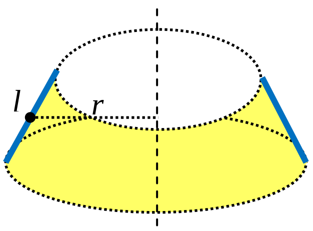
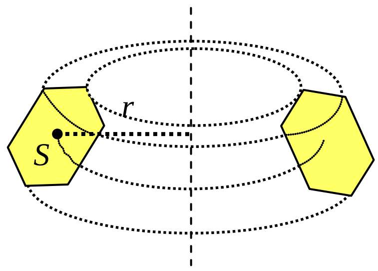


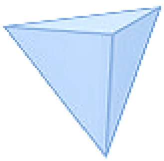
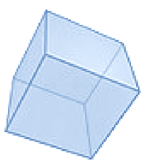
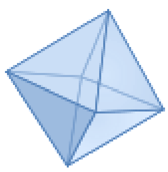
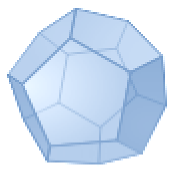
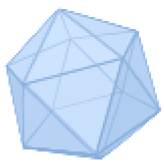
$$\mathcal{V} = \frac{4}{3}\pi\, r^3$$

$\mathcal{S} = 4\,\pi\, r^2$

Volumi $\mathcal{V}$ e superfici $\mathcal{S}$ delle principali figure solide

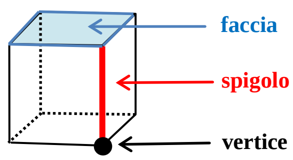
segmento sferico ad 1 base	segmento sferico a 2 basi	spicchio sferico
		
$\mathcal{V}=\frac{h}{2}\pi\, r_1^{\,2}+\frac{4}{3}\pi\left(\frac{h}{2}\right)^3$	$\mathcal{V}=\frac{h\pi}{2}(r_1^{\,2}+r_2^{\,2})+\frac{4}{3}\pi\left(\frac{h}{2}\right)^3$	$\mathcal{V}=\frac{\alpha^\circ}{270^\circ}\pi\, r^3=\frac{2}{3}\pi\, r^3\alpha_{rad}$
$\mathcal{S}=2\,\pi\, r\, h$	$\mathcal{S}=2\,\pi\, r\, h$	$\mathcal{S}=\frac{\alpha^\circ}{90^\circ}\pi\, r^2=2\pi\, r^2\alpha_{rad}$

1^0 teorema di Guldino	2^0 teorema di Guldino
la superficie generata da una linea (poligono) in rotazione intorno ad un asse è uguale al prodotto della circonferenza descritta dal suo baricentro per la sua lunghezza (perimetro)	il volume generato da una superficie in rotazione intorno ad un asse è uguale al prodotto della circonferenza descritta dal suo baricentro per la sua superficie
	
$\mathcal{S}=2\,\pi\, r\, l$	$\mathcal{V}=2\,\pi\, r\, S$

solidi platonici o poliedri regolari				
I solidi platonici sono quei solidi che hanno le facce formate da poligoni regolari. Sono solo cinque:				
tetraedro 4 triangoli equilateri	*esaedro(cubo)* 6 quadrati	*ottaedro* 8 triangoli equilateri	*dodecaedro* 12 pentagoni regolari	*icosaedro* 20 triangoli equilateri
				
$\mathcal{V}=l^3\cdot 0,117$	$\mathcal{V}=l^3$	$\mathcal{V}=l^3\cdot 0,471$	$\mathcal{V}=l^3\cdot 7,663$	$\mathcal{V}=l^3\cdot 2,182$

per i poliedri vale la *formula di Eulero*: $\boldsymbol{Facce+Vertici-Spigoli=2}$

poliedro = solido dello spazio la cui frontiera è l'unione delle facce
facce = figure piane che compongono il poliedro
spigoli = segmenti di incontro delle facce
vertici = punti di incontro degli spigoli



$\mathcal{S}_T=\mathcal{S}_B+\mathcal{S}_L$
$\mathcal{S}_T=$ superficie totale del poliedro
$\mathcal{S}_B=$ superficie di tutte le basi del poliedro
$\mathcal{S}_L=$ superficie laterale del poliedro