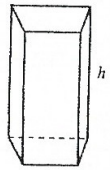
Formulario di geometria solida

a: apotema
h: altezza
P: perimetro
S_l: area laterale
V: volume
α: misura di un angolo in gradi sessagesimali

d: diagonale
l: lato/spigolo
S_b: area di base
S_t: area totale
ρ: misura di un angolo in radianti

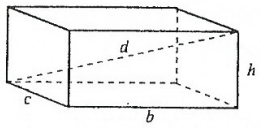


Prisma retto

$S_l = P \cdot h$

$S_t = S_l + 2S_b = P \cdot h + 2S_b$

$V = S_b \cdot h$



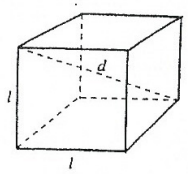
Parallelepipedo rettangolo

$d^2 = h^2 + b^2 + c^2$

$S_l = P \cdot h = 2\,(b + c) \cdot h$

$S_t = S_l + 2S_b = 2\,(h \cdot b + h \cdot c + b \cdot c)$

$V = S_b \cdot h = b \cdot c \cdot h$



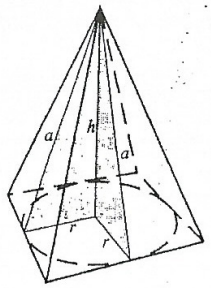
Cubo (esaedro regolare)

$d^2 = 3l^2$

$S_l = 4l^2$

$S_t = 6l^2$

$V = l^3$



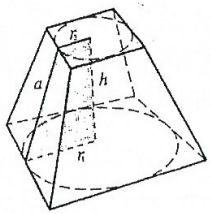
Piramide retta

$a^2 = h^2 + r^2$

$S_l = \frac{1}{2} P \cdot a$

$S_t = S_l + S_b = \frac{1}{2} P \cdot a + S_b$

$V = \frac{1}{3} S_b \cdot h$



Tronco retto di piramide

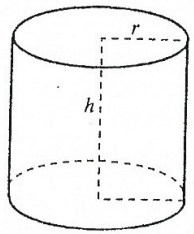
$a^2 = h^2 + (r_1 - r_2)^2$

$S_l = \frac{1}{2} (P_1 + P_2) \cdot a$

$S_t = S_l + S_1 + S_2$

$V = \frac{1}{3} (S_1 + S_2 + \sqrt{S_1 \cdot S_2}) \cdot h$

P_1: perimetro della base maggiore; S_1: area della base maggiore; P_2: perimetro della base minore; S_2: area della base minore.

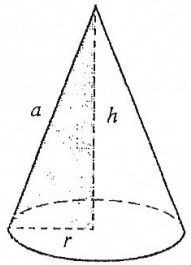


Cilindro retto

$S_l = 2\pi r \cdot h$

$S_t = S_l + 2S_b = 2\pi r \cdot (r + h)$

$V = S_b \cdot h = \pi r^2 \cdot h$



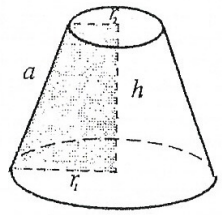
Cono retto

$a^2 = h^2 + r^2$

$S_l = \pi r \cdot a$

$S_t = S_l + S_b = \pi r \cdot (a + r)$

$V = \frac{1}{3} S_b \cdot h = \frac{1}{3} \pi r^2 \cdot h$



Tronco di cono retto

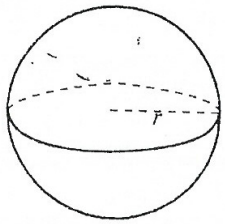
$a^2 = h^2 + (r_1 - r_2)^2$

$S_l = \pi\,(r_1 + r_2) \cdot a$

$S_t = S_l + S_1 + S_2 = S_l + \pi\,(r_1^2 + r_2^2)$

$V = \frac{1}{3}\,\pi h\,(r_1^2 + r_2^2 + r_1 \cdot r_2)$

S_1: area della base maggiore; S_2: area della base minore.

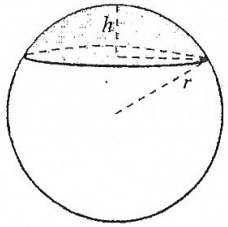


Superficie sferica

$S = 4\pi r^2$

Sfera

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

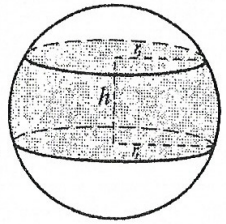


Calotta sferica

$S = 2\pi r \cdot h$

Segmento sferico a una base

$V = \frac{1}{3}\,\pi h^2\,(3r - h)$

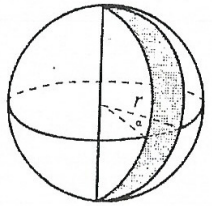


Zona sferica

$S = 2\pi r \cdot h$

Segmento sferico a due basi

$V = \frac{1}{6}\,\pi h\,(3r_1^2 + 3r_2^2 + h^2)$



Fuso sferico

$S = \frac{\pi r^2}{90}\,\alpha = 2\rho r^2$

Spicchio sferico

$V = \frac{\pi r^3}{270}\,\alpha = \frac{2}{3}\,\rho r^3$

Poliedri regolari

l: spigolo
V: volume
r_c: raggio della sfera circoscritta
S_f: area di una faccia
r_i: raggio della sfera inscritta

nome	S_f	r_i	r_c	V
tetraedro	$\frac{\sqrt{3}}{4} \cdot l^2$	$\frac{\sqrt{6}}{12} \cdot l$	$\frac{\sqrt{6}}{4} \cdot l$	$\frac{\sqrt{2}}{12} \cdot l^3$
esaedro	l^2	$\frac{1}{2} \cdot l$	$\frac{\sqrt{3}}{2} \cdot l$	l^3
ottaedro	$\frac{\sqrt{3}}{4} \cdot l^2$	$\frac{\sqrt{6}}{6} \cdot l$	$\frac{\sqrt{2}}{2} \cdot l$	$\frac{\sqrt{2}}{3} \cdot l^3$
dodecaedro	$\frac{\sqrt{25+10\sqrt{5}}}{4} \cdot l^2$	$\frac{\sqrt{250+110\sqrt{5}}}{20} \cdot l$	$\frac{\sqrt{15}+\sqrt{3}}{4} \cdot l$	$\frac{15+7\sqrt{5}}{4} \cdot l^3$
icosaedro	$\frac{\sqrt{3}}{4} \cdot l^2$	$\frac{\sqrt{42+18\sqrt{5}}}{12} \cdot l$	$\frac{\sqrt{10+2\sqrt{5}}}{4} \cdot l$	$\frac{5\,(3+\sqrt{5})}{12} \cdot l^3$