tetraedro regular:

$A_t = \frac{4.\ell^2\sqrt{3}}{4}$ $V = \frac{\ell^3\sqrt{2}}{12}$

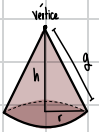
octaedro regular: 2 pirâmides de base quadrada

$A_t = 8.\frac{\ell^2\sqrt{3}}{4}$ $\uparrow V = \frac{\ell^3\sqrt{2}}{\downarrow 1+2}$

UFSC: tetraedro regular $\ell = 10$

$V = \frac{10^3\sqrt{2}}{12} = \frac{250\sqrt{2}}{3}$

CONES



$g^2 = r^2 + h^2$

- se lados em PA = 3,4,5

FÓRMULAS → Ab

$A_t = A_L + \pi r^2$

↳ $A_L = \pi . r . g$

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

ex: Cone circular reto com geratriz 5 e área lateral 15π

$15\pi = \pi r . g \therefore r = 3$ e $h = 4$

$V = \frac{\pi . 3^2 . 4}{3} = 12\pi\ cm^3$

ÂNGULO DE PLANIFICAÇÃO

$\ell = \alpha . r \therefore 2\pi r = \alpha . g$

$\alpha = \frac{2\pi r}{g}$

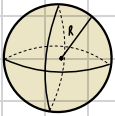
UFU: raio 4 e altura 3 $\therefore g = 5$

$\alpha = \frac{2\pi . 4}{5} \therefore \frac{8\pi}{5} = \frac{\alpha . 180}{5} = 288°$

CONE EQUILÁTERO

$g = 2r$

ESFERAS



$A = 4\pi . R^2$

$V = \frac{4\pi R^3}{3}$

ex: UFSC $\sum r = 70cm$

$r.0,4 \therefore r = 20cm$ $r = 50cm$

$V = \frac{4\pi(50.10^{-2})^3}{3} + \frac{4\pi(20.10^{-2})^3}{3}$

$\frac{4\pi . 5dm^3}{3} + \frac{4\pi . 2dm^3}{3}$

$\frac{4\pi . 125}{3} + \frac{4\pi . 8}{3} \approx 177dm^3$

ex: UFRGS

$V_{esf} = \frac{4\pi . 2^3}{3} = \frac{32\pi}{3}$ (volume deslocado)

$V_{cilo} = V_{esf}$

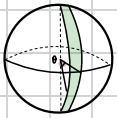
$\pi . 4^2 . h = \frac{4\pi . 2^3}{3}$

$h = \frac{2}{3}$

$(h_0 - x = h_1)$

$\frac{12}{3} - \frac{2}{3} = \frac{10}{3}$

FUSO ESFÉRICO: área (2D)

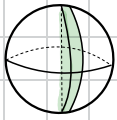


REGRA DE TRÊS

A_{Fe}: $360° - 4\pi . r^2$

$\alpha - x$

CUNHA ESFÉRICA: volume (3D)



REGRA DE TRÊS

$V_{C.e}$: $360° - \frac{4\pi r^3}{3}$

$\alpha - x$

$A_{C.e}$: $A_{F.e} + Círculo\ máx\ (r = R_{esf})$

CALOTA ESFÉRICA

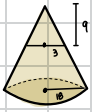
$A_{cal} = 2\pi R . h$

TRONCOS E SEMELHANTES

1 SÓLIDOS SEMELHANTES

- Vêm de secções transversais, cortes // à base

SOU: a 9cm do Vértice de um cone de 18cm de raio é feito um corte determinando um novo cone de r=3. Calcule o Volume do cone original?



$\frac{r_1}{r_2} = \frac{18}{3} = k = 6$ $\frac{h_1}{9} = 6$

$\left(\frac{V_1}{V_2}\right) = 6^3$ ↗ Volume $\frac{A_1}{A_2} = 6^2$ ↗ área

2 TRONCO

- é a base pós secção transversal

PIRÂMIDE

$V_{tronco} = \frac{h}{3} . (A_B + A_b + \sqrt{A_B . A_b})$

$V_{total} - V_{semelhante} = V_{tronco}$

$A_{tronco}: A_L + A_{b1} + A_{b2}$

CONE

$V_{tronco} = \frac{h\pi}{3} . (R^2 + r^2 + R . r)$

$A: (\pi Rg - \pi rg) + \pi r^2 + \pi R^2$

UFSC:

$A_t = \frac{15}{3} . (40 + 100 + \sqrt{40.100}) = 3.500$

Semelhança

$\frac{20}{10} = \frac{15+x}{x} \therefore x = 15$ $V_{tro} = \frac{Vhe - Vsem}{\frac{20^2 . 30}{3} - \frac{10^2 . 15}{3}} = 3.500$