Cones

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1)

$\frac{2\pi r}{2} = \frac{40\pi}{2} = 20\pi$

$2\pi \cdot r = 20\pi$

$R = 10$

$10^2 + h^2 = 20^2$

$H^2 = 400 - 100$

$H^2 = 300$

$H = 10\sqrt{3}$

2)

$V = \pi \cdot r^2 \cdot h/3$

$64\pi = \pi r^2 \cdot 12/3$

$3 \cdot 64\pi = 12\pi \cdot r^2$

$192\pi = 12\pi \cdot r$

$r^2 = 192\pi / 12\pi$

$r = \sqrt{16}$

$r = 4$

Raio Base!

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

$g^2 = 16 + 144$

$g^2 = 160$

$g = 4\sqrt{10}$

4.)

$\sin(60°) = r/2$

$\frac{\sqrt{3}}{\cancel{2}} = \frac{r}{\cancel{2}}$

$r = \sqrt{3}$

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

$2^2 = h^2 + \sqrt{3}^2$

$4 = h^2 + 3$

$h = 1$ cm

$V = \left(\frac{1}{3}\right) A_{Base}\, h =$

$V = \left(\frac{1}{3}\right) \pi\, 3 = \pi$ cm

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5)

$V_{cilindro} = \pi \cdot r^2 \cdot H = \pi \cdot 3^2 \cdot 5 = 45\pi$

$V_{cone} = \frac{1}{3} \pi r^2 H = \frac{1}{\cancel{3}} \cdot \pi \cdot 1^3 \cdot \cancel{3} = \pi$

$V_{resta} = 45\pi - \pi = 44\pi$

6)

$V_{cilindro} = \frac{1}{3} A_b \cdot h$

$V_{prisma} = A_b \cdot \frac{2}{3} h$

$\frac{V_p}{V_c} = \frac{A_b \cdot \frac{2}{3} h}{\frac{1}{3} A_b \cdot h}$

$\frac{V_p}{V_c} = 2$

Troncos

1)

$V = \frac{\pi r^2 \cdot h}{3} = \frac{\pi \cdot 3^2}{3} \cdot 8 = 24\pi\ cm^2$

$V_L = 12\pi\ cm^2$

$\frac{V}{V_L} = \frac{H^3}{h^3}$

$\frac{24\pi}{12\pi} = \frac{8^3}{h^2}$

$2h^3 = 8^3$

$h^3 = \sqrt{\frac{512}{2}}$

$h = \sqrt[3]{256}$

$h = 4\sqrt[3]{4}\ cm$

2)

V = Volume copo

VS = Volume son[illegible]

$\frac{VS}{V} = \left(\frac{16}{20}\right)^3$

$V = \frac{64V}{125} + V_S'$

$\frac{VS}{V} = \frac{64}{125}$

$V - \frac{64V}{125} = V_S'$

$VS = \frac{64V}{125}$

$V_S' = \frac{61V}{125} = 0{,}48V \cong 50\%$

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3)

$$\frac{R}{r} = \frac{H}{(H-d)}$$

$$\frac{R^3}{r^3} = \frac{H^3}{(H-d)^3}$$

$$\frac{V}{v} = 2$$

$$\frac{H}{(H-d)} = \sqrt[3]{(2)}$$

$$H - d = \frac{H}{\sqrt[3]{(2)}} = H\sqrt[3]{(1/2)}$$

$$d = H\left(1 - \sqrt[3]{(1/2)}\right)$$

$$d = H\left(1 - \sqrt[3]{4}\right)$$

$$d = \frac{H(2 - \sqrt[3]{4})}{2}$$

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5) $A_b = \pi \cdot r^2$

$A_b = \pi \cdot 5^2 = 35\pi$

$V = \pi \cdot h/3 \cdot (R^2 + R \cdot r + r^2)$

$V = \pi\, 4/3 \cdot (2^2 + 2 \cdot 5 + 5^2)$

$(6 \cdot 30)$

$V = \pi \dfrac{4}{3} \cdot 180$

6) π

$R = 7$

$r = 3cm$

$g = 5cm$

$H^2 + 3^2 = 5^2$

$H^2 + 9 = 25$

$H = \sqrt{16} = 4$

$V = \dfrac{\pi h}{3} \cdot (R^2 + R \cdot r + r^2)$

$V = \dfrac{\pi 4}{3} \cdot (7^2 + 7 \cdot 3 + 3^2)$

$V = \dfrac{\pi 4}{3} \cdot (79)$

$= \dfrac{\pi R \cdot h}{3}$

$= \dfrac{\pi 7 \cdot 4}{3}$

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7)

$V_1 = \frac{1}{3} \cdot \pi \cdot R^2 \cdot H$

$V_2 = \frac{1}{3} \cdot \pi \cdot r^2 \cdot H$

$V_3 = V_1 - V_2$

$V = \frac{1}{3} \cdot \pi \cdot R^2 \cdot H$

$V_3 = \frac{1}{3} \pi (H R^2 - h r^2)$

$V_2 = V_3$

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

$2 r^2 \cdot H = H R^2$

$H = 2 \cdot \left(\frac{r}{R}\right)^2$

$\left(\frac{r}{R}\right)^2 = \frac{H}{2}$

$\frac{H}{R} = \frac{h}{r}$

$\frac{r}{R} = \frac{h}{H}$

$\left(\frac{r}{R}\right)^2 = \left(\frac{h}{H}\right)^2$

$\left(\frac{r}{R}\right)^2 = \frac{H}{2}$

$\left(\frac{h}{H}\right)^2 = \left(\frac{H}{2}\right) 2$

$\frac{h}{h} = \frac{H^2}{4}$

$4h = H^2$

$H = \sqrt{4h}$