Tarefa básica

1. $V = \pi r^2 \cdot a = \pi \cdot 10^2 \cdot 40 = 4000\pi\ cm^2$ $\quad \frac{4000}{5} = 800\pi$

$V = \pi r^2 \cdot h = \pi 5^2 \cdot h = 800\pi\ cm^2$

$25h = 800$

$h = \frac{800}{25} = 32\ cm$ //

2. $\frac{\pi (R_1)^2 \cdot h_1}{\pi (R_2)^2 h_2} = \frac{1}{27} = \frac{(R_1)^2 \cdot 2R_1}{(R_2)^2 16R_2} = \frac{1}{27}$

$\left(\frac{R_1}{R_2}\right)^3 = \frac{8}{27} \qquad \frac{R_1}{R_2} = \frac{2}{3}$ //

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

$3\pi \cdot r \cdot h = 2\pi \cdot r \cdot h + 2\pi r^2$

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

$h = 2 \cdot r \quad (I)$

$\pi \cdot r^2 \cdot h = 16\pi \qquad h = \frac{16}{r^2} \quad (II)$

$\frac{16}{r^2} = 2r$

$2r^3 = 16$

$r = \sqrt{8} = 2$ //

$\pi \cdot r^2 \cdot h = 16\pi$

$\pi \cdot 4 \cdot h = 16\pi$

$h = \frac{\pi 16}{\pi 4} = 4$ //

4. $\pi (r^2 + 12)^2 \cdot 4 = \pi \cdot r^2 \cdot (4 + 12)$

$\pi \cdot (r^2 + 24r + 144) \cdot 4 = \pi \cdot r^2 \cdot 16$

$\pi \cdot 4r^2 + 96r + 576) = \pi \cdot 16 \cdot r^2$

$4r^2 + 96r + 576 = 16r^2$

$16r^2 - 4r^2 - 96r - 576 = 0 \quad :12$

$12r^2 - 96r - 576 = 0$

$r^2 - 8r - 48 = 0$

$x_1 = \frac{8 + 16}{2} = 12 \qquad x_2 = \frac{8 - 16}{2} = -4$

5. $R = 20\ cm \Rightarrow h = 0,08\ cm$ $\quad S = \pi \cdot 20^2$

$h = 0,8\ mm$ $\quad S = 400\pi\ cm^2$

$V = 400\pi \cdot 0,08$

$V = 32 \cdot \pi$

$V \simeq 100,5\ cm^3$ //

Pirâmides

1. $V = 48\ cm^3$ | $Ab = 2x^2\ cm^2$ $\quad h = 8\ cm$

$$48 = \frac{2x^2 \cdot 8}{3} = \frac{16x^2}{3} = 48 \cdot 3$$

$$x^2 = \frac{48 \cdot 3}{16}$$

$$x^2 = 3 \cdot 3 = \sqrt{9} = 3\ //$$

2. $x^2 = 30^2 + 40^2$ $\quad \frac{80 \cdot 50}{2} = 2000$ $\quad Ab = 80 \cdot 80 = 6400$

$x^2 = 900 + 1600$ $\quad 4 \cdot 2000 = 8000$

$x^2 = 2500$

$x = \sqrt{2500}$

$x = 50$ // $\quad Ar = 8000 + 6400 = 14.400$

3. $Ar = \frac{\sqrt{2} \cdot \sqrt{2}}{2} = \frac{2}{2} = 1\ cm$

4. $V = \frac{1}{3} \cdot 6 \cdot \frac{a^2\sqrt{3}}{4} = \frac{3a^2 \cdot h}{2}$

5. $V = \frac{6 \cdot 4^2\sqrt{3} \cdot 6\sqrt{3}}{4 \cdot 2} = V = 6 \cdot 4 \cdot 3 \cdot 2 = 144\ cm^3$

6. $A_b = \frac{6 \cdot 1^2 \sqrt{3}}{4} = \frac{6\sqrt{3}}{4} = \frac{3\sqrt{3}}{2}\ cm^2$

$V = \frac{1}{3} \cdot 6 \cdot \frac{3\sqrt{3}}{2} = 4\sqrt{3}\ cm^3$

7. Pirâmide: $A_b = 4a^2$; $V = \frac{4a^2 \cdot h_1}{3}$

Prisma: $A_b = a^2$; $V = a^2 \cdot h^2$

$\frac{4a^2 \cdot h_1}{3} = a^2 \cdot h_2$

$\frac{h_1}{h_2} = \frac{3a^2}{4a^2} = \frac{3}{4}$

8. $A_T = a^2\sqrt{3}$

$6\sqrt{3} = a^2\sqrt{3}$

$a = \sqrt{6}$

$h = \frac{a\sqrt{6}}{3} = \frac{\sqrt{6} \cdot \sqrt{6}}{3} = \frac{\sqrt{36}}{3} = \frac{6}{3} = 2\ cm$