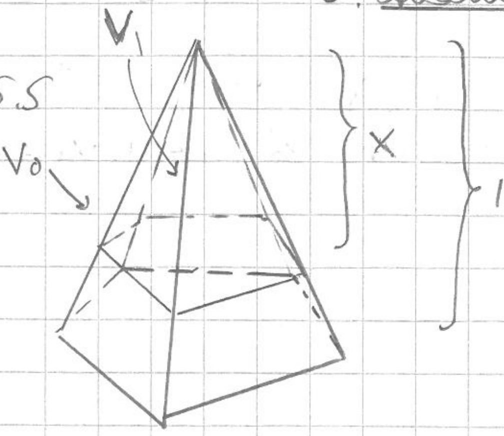
5. Avaruusgeometria

5.5



$V_1 \sim V_0$

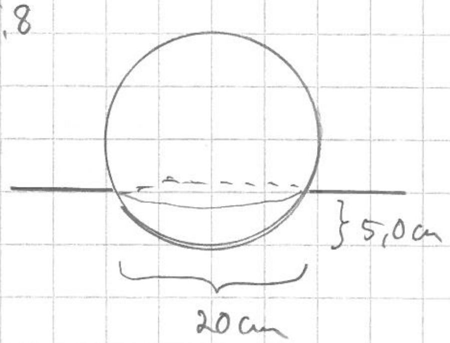
$\frac{V_1}{V_0} = k^3 = \left(\frac{x}{15{,}0\,cm}\right)^3 = \frac{1}{2} \quad \big|\sqrt[3]{}$

$\Leftrightarrow \frac{x}{15{,}0\,cm} = \sqrt[3]{\frac{1}{2}} \quad \big| \cdot 15{,}0\,cm$

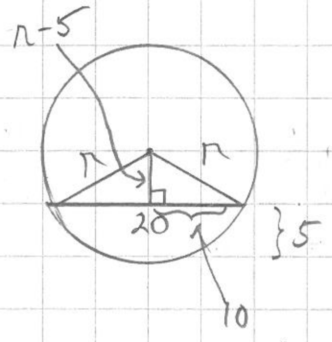
$\Leftrightarrow x = 15{,}0\,cm \cdot \sqrt[3]{\frac{1}{2}} \approx 11{,}905\,cm \approx \underline{11{,}9\,cm}$

2. pala: $15{,}0\,cm - x \approx \underline{3{,}1\,cm}$

5.8



leikataan ⇒ tasolla



Pythagoras:

$(r-5)^2 + 10^2 = r^2$

$\Leftrightarrow (r^2 - 2 \cdot r \cdot 5 + 5^2) + 10^2 = r^2$

$\Leftrightarrow 125 = 10r$

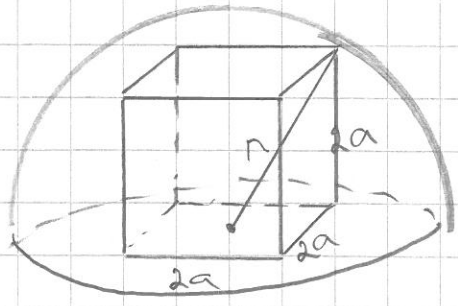
$\Leftrightarrow r = 12{,}5\ (cm)$

Pallosegmentin tilavuus (maol)

$V_s = \pi h^2 \left(r - \frac{h}{3}\right) = \pi \cdot (5{,}0\,cm)^2 \left(12{,}5\,cm - \frac{5{,}0\,cm}{3}\right)$

$\approx 850{,}84\,cm^3 \approx \underline{850\,cm^3}$

5.10



Pythagoras avaruudessa:

$a^2 + a^2 + (2a)^2 = r^2$

$\Leftrightarrow 6a^2 = r^2 \quad |\sqrt{}$

$\Leftrightarrow r = \sqrt{6a^2} = \sqrt{6}\,a$

$\frac{V_k}{V_{\frac{1}{2}p}} = \frac{(2a)^3}{\frac{1}{2} \cdot \frac{4}{3}\pi r^3} = \frac{8a^3}{\frac{1}{2} \cdot \frac{4}{3}\pi(\sqrt{6}\,a)^3}$

$\approx 0{,}2598 \approx \underline{26\,\%}$

6. Analyyttinen geometria

6.5 $(1, 2)$

a) $y = 2$

b) $(-1, 6)$, $k = \frac{\Delta y}{\Delta x} = \frac{2-6}{1-(-1)} = \frac{-4}{2} = -2 \Rightarrow y - 2 = -2(x-1) \Leftrightarrow y = -2x + 4$