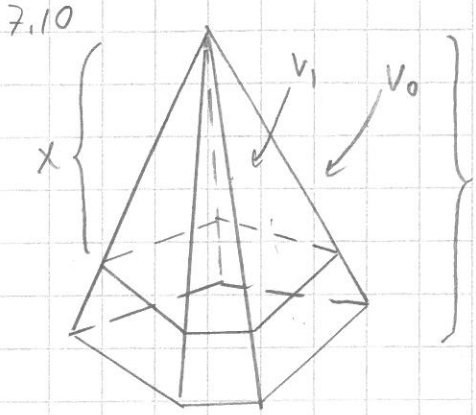
Öljyn tilavuus:

$$V = A_{peg} \cdot h = 53{,}6812\ dm^2 \cdot 35\ dm \approx 1878{,}841\ dm^3 \approx \underline{1900\ l}$$

7.10



$$V_1 \sim V_0$$

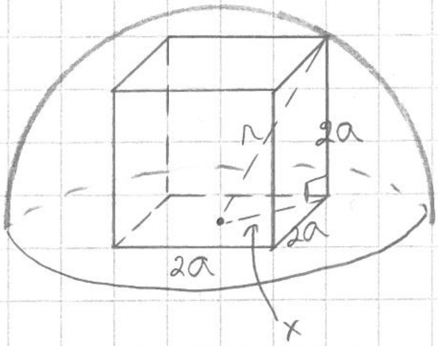
$$\frac{V_1}{V_0} = k^3 = \left(\frac{x}{15{,}0\,cm}\right)^3 = \frac{1}{2} \quad |\sqrt[3]{\ }$$

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

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

$\Rightarrow$ alempi: $15{,}0\,cm - x = \underline{3{,}1\,cm}$

7.12



pohjan lävistäjä: $\sqrt{(2a)^2 + (2a)^2} = \sqrt{8a^2}$
$= \sqrt{4}\sqrt{2}\sqrt{a^2} = 2\sqrt{2}a$

$$x = \frac{1}{2} \cdot 2\sqrt{2}a = \sqrt{2}a$$

Pythagoras: $(\sqrt{2}a)^2 + (2a)^2 = r^2$

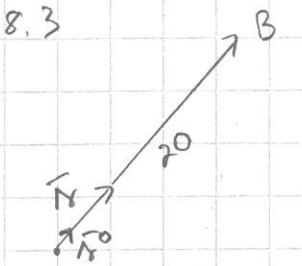
$$\Leftrightarrow 2a^2 + 4a^2 = r^2$$

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

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

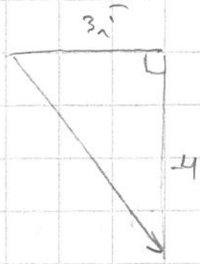
$$\frac{V_k}{V_{\frac{1}{2}p}} = \frac{(2a)^3}{\frac{1}{2}\cdot\frac{4}{3}\pi r^3} = \frac{8a^3}{\frac{2}{3}\pi(\sqrt{6}a)^3} = \frac{8\cancel{a^3}}{\frac{2}{3}\pi(\sqrt{6})^3\cancel{a^3}} \approx 0{,}2598 \approx 26\%$$

8.3



$$\bar r = 3\bar i - 4\bar k$$

$$|\bar r| = \sqrt{3^2 + (-4)^2} = 5$$



$$\overline{AB} = 20\bar r^0 = 20\frac{\bar r}{|\bar r^0|} = 20\cdot\frac{\bar r}{5}$$

$$= 4\bar r = 4(3\bar i - 4\bar k) = 12\bar i - 16\bar k$$

$$\Rightarrow B = (-3+12,\ 2+0,\ 5-16) = \underline{(9, 2, -11)}$$

8.14 $\bar c = \bar i + 7\bar j \qquad \bar a = 2\bar i + 3\bar j \qquad \bar b = -7\bar i + 6\bar j$

$$\bar c = x\bar a + y\bar b$$

$$\Leftrightarrow \underline{\bar i} + \underline{7\bar j} = x(2\bar i + 3\bar j) + y(-7\bar i + 6\bar j)$$

$$= 2x\bar i + 3x\bar j - 7y\bar i + 6y\bar j$$

$$= \underline{(2x - 7y)}\bar i + \underline{(3x + 6y)}\bar j$$