

3. Bez

Pyramide / Kegel

Lösungen AB 5

1. $V_{\text{Würfel}} = a^3 = 1000\text{cm}^3$

$$O_{\text{Würfel}} = 6 \cdot a^2 = \underline{\underline{600\text{cm}^2}}$$

$$V_{\text{Pyramide}} = 1000\text{cm}^3 = \frac{G \cdot h_P}{3} \quad \rightarrow h_P = 3 \cdot a = 30\text{cm}$$

$$h_a = \sqrt{h_P^2 + \left(\frac{a}{2}\right)^2} = 30,4\text{cm}$$

$$O_{\text{Pyramide}} = a^2 + 4 \cdot \frac{a \cdot h_a}{2} = \underline{\underline{708,3\text{cm}^2}}$$

2. $M = 4 \cdot \frac{6,3 \cdot 4,8}{2} = 60,48\text{m}^2 = 100\%$

$$115\% = 1,15 \cdot 60,48 = \underline{\underline{69,552\text{m}^2}}$$

3. $V_{\text{Block}} = \frac{m}{\rho} = \frac{2,475}{2,25} = 1,1\text{m}^3$

$$V_{\text{Pyramide}} = \frac{s^2 \cdot h}{3} = 2'394'589\text{m}^3 = 100\%$$

$$85\% = 0,85 \cdot 2'394'589\text{m}^3 = 2'035'400\text{m}^3$$

$$\text{Anzahl Steine} = \frac{2'035'400}{1,1} = \underline{\underline{1'850'400 \text{ Steine}}}$$

4. $M_1 = 4 \cdot \frac{h_{D1} \cdot 25}{2} = 1397,5\text{m}^2$

$$h_{D1} = \sqrt{25^2 + 12,5^2} = 28\text{m}$$

$$M_2 = \frac{M_1}{2} = 4 \cdot \frac{h_{D2} \cdot 25}{2} = 50 \cdot h_{D2} \quad / :50$$

$$\frac{M_1}{100} = h_{D2} = 13,98\text{m}$$

$$h = \sqrt{h_{D2}^2 - 12,5^2} = \underline{\underline{6,25\text{m}}}$$