

3. Bez

Pyramide / Kegel

Lösungen Vortest

$$1. \quad V = \frac{a^2 \cdot h}{3} \quad / \cdot 3$$

$$3V = a^2 \cdot h \quad / : a^2$$

$$\frac{3V}{a^2} = h = \underline{\underline{21,6cm}}$$

$$2. \quad a) \quad V_{Total} = \frac{a \cdot b \cdot h}{3} = 960cm^3 \quad V_{Spitze} = \frac{\frac{a}{2} \cdot \frac{b}{2} \cdot \frac{h}{2}}{3} = \underline{\underline{120cm^3}}$$

$$b) \quad V_{Stumpf} = V_{Total} - V_{Spitze} = \underline{\underline{840cm^3}}$$

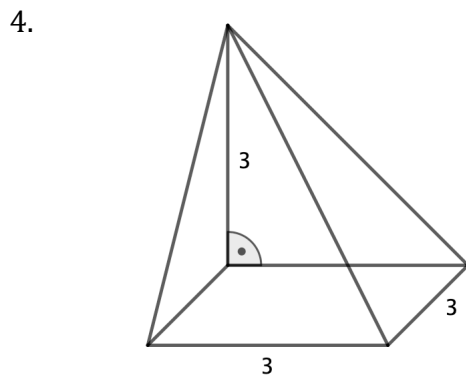
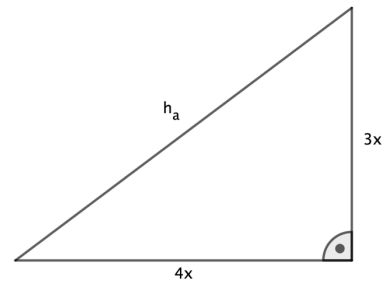
$$c) \quad \frac{120}{840} = \frac{1}{7} \rightarrow \underline{\underline{Verhältnis 1:7}}$$

$$3. \quad a = 8x \quad h = 3x$$

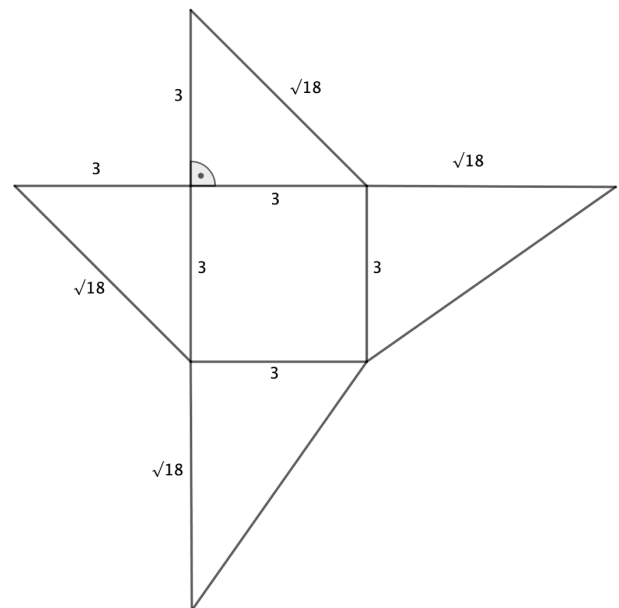
$$h_a = \sqrt{(4x)^2 + (3x)^2} = \sqrt{16x^2 + 9x^2} = \sqrt{25x^2} = 5x$$

$$V = \frac{a^2 \cdot h}{3} = \frac{64x^2 \cdot 3x}{3} = \underline{\underline{64x^3}}$$

$$M = 4 \cdot \frac{a \cdot h_a}{2} = \frac{4 \cdot 8x \cdot 5x}{2} = \underline{\underline{80x^2}}$$



$$M = \frac{3 \cdot 3}{2} + \frac{3 \cdot 3}{2} + \frac{3 \cdot \sqrt{18}}{2} + \frac{3 \cdot \sqrt{18}}{2} = \underline{\underline{21,7cm^2}}$$



$$5. \quad r = \sqrt{s^2 - h^2} = 113,2 \text{ cm}$$

$$V = \frac{r^2 \cdot \pi \cdot h}{3} = 1'610'285 \text{ cm}^3 = \underline{\underline{1,6 \text{ m}^3}}$$

$$6. \quad r = \sqrt{\frac{G}{\pi}} = 7,98 \text{ cm}$$

$$s = \frac{M}{\pi \cdot r} = 15,96 \text{ cm}$$

$$h = \sqrt{s^2 - r^2} = 13,8 \text{ cm}$$

$$V = \frac{G \cdot h}{3} = \underline{\underline{921,3 \text{ cm}^3}}$$

$$7. \quad V = \frac{m}{\rho} = \frac{2600}{8,9} = 292,1 \text{ cm}^3$$

$$G = \frac{V}{h} = 29,21 \text{ cm}^2$$

$$a = \sqrt{G} = \underline{\underline{5,4 \text{ cm}}}$$

$$8. \quad d = \sqrt{1^2 + 1^2} = 1,41 \text{ m}$$

$$h = \sqrt{1^2 - \left(\frac{d}{2}\right)^2} = 0,7 \text{ m}$$

$$V = \frac{G \cdot h}{3} = \underline{\underline{0,24 \text{ m}^3}}$$