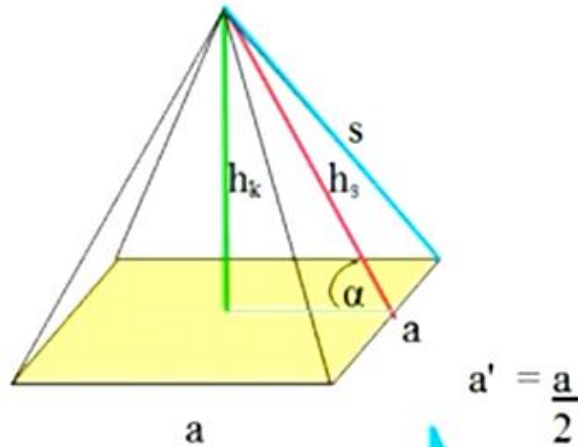


Quadratische Pyramide (***)

Geg.: Quadratische Pyramide: $s = 8,4\text{cm}$; $h_s = 7,2\text{cm}$

(statt h_s wird oft auch h_a verwendet)

Ges.: h_k , G , M , O , V , α , Netzdarstellung



Formeln:

$$G = a^2$$

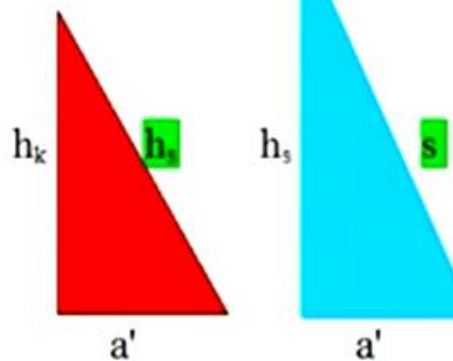
$$u = 4 * a$$

$$V = \frac{G * h_k}{3}$$

$$M = 2 * a * h_s$$

$$O = G + M$$

$$m = \rho * V$$



2) Geg.: quad. Pyramide: $s = 8,4\text{ cm}$; $h_k = 6,8\text{ cm}$

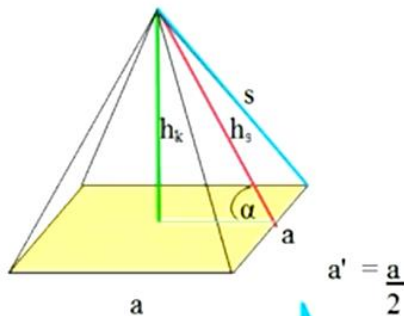
Ges.: d ; G , M , O

Quadratische Pyramide (***)

Lösung zu 1:

Quadratische Pyramide

2011, A. Wendt



Formeln:

$$G = a^2$$

$$u = 4 * a$$

$$V = \frac{G * h_k}{3}$$

$$M = 2 * a * h_s$$

$$O = G + M$$

$$m = \rho * V$$

③ Geg.: quad. Pyramide: $s = 8,4 \text{ cm}$; $h_s = 7,2 \text{ cm}$

Ges.: h_k, G, M, O, V, α

$$hs^2 + a'^2 = s^2 \quad | -h_s^2 \quad | \sqrt{\quad}$$

$$a' = \sqrt{s^2 - h_s^2} = \sqrt{8,4^2 - 7,2^2} = 4,33 \text{ cm}$$

$$\underline{a} = 2 * a' = 2 * 4,33 = \underline{8,66 \text{ cm}}$$

$$h_k^2 + a'^2 = h_s^2 \quad | -a'^2 \quad | \sqrt{\quad}$$

$$\underline{h_k} = \sqrt{h_s^2 - a'^2} = \sqrt{7,2^2 - 4,33^2} = \underline{5,75 \text{ cm}}$$

$$\underline{G} = a^2 = 8,66^2 = \underline{75 \text{ cm}^2}$$

$$\underline{M} = 2 * a * h_s = 2 * 8,66 * 7,2 = \underline{124,7 \text{ cm}^2}$$

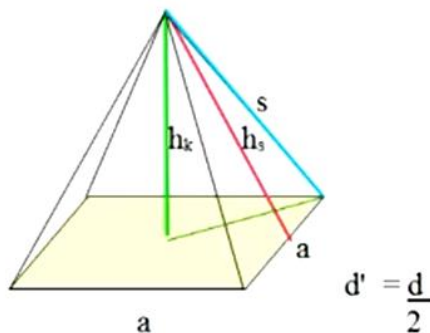
$$\underline{O} = G + M = 75 + 124,7 = \underline{199,7 \text{ cm}^2}$$

$$\underline{V} = \frac{G * h_k}{3} = \frac{75 * 5,75}{3} = \underline{143,75 \text{ cm}^3}$$

$$\sin \alpha = \frac{h_k}{h_s} \quad | \sin^{-1} \quad \alpha = \sin^{-1} \left[\frac{5,75}{7,2} \right] = \underline{53^\circ}$$

Quadratische Pyramide

2011, A. Wendt



Formeln:

$$G = a^2$$

$$u = 4 * a$$

$$V = \frac{G * h_k}{3}$$

$$M = 2 * a * h_s$$

$$O = G + M$$

$$m = \rho * V$$

④ Geg.: quad. Pyramide: $s = 8,4 \text{ cm}$; $h_s = 6,8 \text{ cm}$

Ges.: $d; G, M, O$

$$h_k^2 + d'^2 = s^2 \quad | -h_k^2 \quad | \sqrt{\quad}$$

$$d' = \sqrt{s^2 - h_k^2} = \sqrt{8,4^2 - 6,8^2} = 4,93 \text{ cm}$$

$$\underline{d} = 2 * d' = 2 * 4,93 = \underline{9,86 \text{ cm}}$$

$$2 * a^2 = d^2 \quad | : 2 \quad | \sqrt{\quad}$$

$$\underline{a} = \sqrt{\frac{d^2}{2}} = \sqrt{\frac{9,86^2}{2}} = \underline{6,97 \text{ cm}}$$

$$\underline{G} = a^2 = 6,97^2 = \underline{48,58 \text{ cm}^2}$$

$$h_s^2 = h_k^2 + a'^2 \quad | \sqrt{\quad}$$

$$\underline{h_s} = \sqrt{h_k^2 + a'^2} = \sqrt{6,8^2 + 3,49^2} = \underline{7,64 \text{ cm}}$$

$$\underline{M} = 2 * a * h_s = 2 * 6,97 * 7,64 = \underline{106,5 \text{ cm}^2}$$

$$\underline{O} = G + M = 48,58 + 106,5 = \underline{155,08 \text{ cm}^2}$$

Quadratische Pyramide (***)

Quadratische Pyramide:

Vorschlag für eine mögliche Netzdarstellung:

