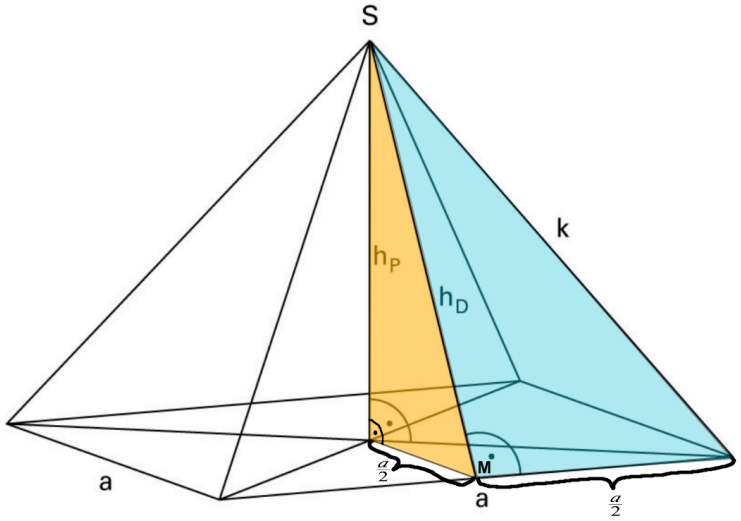
Berechnungen an einer senkrechten quadratischen Pyramide



a.) a = 8m , k = 12m , **h_D = ?**

$$k^2 = h_D^2 + \left(\frac{a}{2}\right)^2 \Rightarrow h_D = \sqrt{k^2 - \left(\frac{a}{2}\right)^2} = \sqrt{12^2 - \left(\frac{8}{2}\right)^2}$$

$$= \sqrt{144 - 16} = \underline{\underline{\sqrt{128}\,m}}$$

b.) a = 20m , h_D = 30m , **h_P = ?**

$$h_D^2 = h_P^2 + \left(\frac{a}{2}\right)^2 \Rightarrow h_P = \sqrt{h_D^2 - \left(\frac{a}{2}\right)^2} = \sqrt{30^2 - \left(\frac{20}{2}\right)^2}$$

$$= \sqrt{900 - 100} = \underline{\underline{\sqrt{800}\,m}}$$

c.) a = 6m , k = 10m , **h_P = ?**

$$k^2 = h_D^2 + \left(\frac{a}{2}\right)^2 \Rightarrow h_D = \sqrt{k^2 - \left(\frac{a}{2}\right)^2} = \sqrt{10^2 - \left(\frac{6}{2}\right)^2}$$

$$= \sqrt{100 - 9} = \underline{\sqrt{91}m}$$

$$h_D^2 = h_P^2 + \left(\frac{a}{2}\right)^2 \Rightarrow h_P = \sqrt{h_D^2 - \left(\frac{a}{2}\right)^2} = \sqrt{\sqrt{91}^2 - \left(\frac{6}{2}\right)^2}$$

$$= \sqrt{91 - 9} = \underline{\underline{\sqrt{82}\,m}}$$

d.) a = 14m , h_P = 8m , **k = ?**

$$h_D^2 = h_P^2 + \left(\frac{a}{2}\right)^2 \Rightarrow h_D = \sqrt{h_P^2 + \left(\frac{a}{2}\right)^2} = \sqrt{8^2 + \left(\frac{14}{2}\right)^2}$$

$$= \sqrt{64 + 49} = \underline{\underline{\sqrt{113}\,m}}$$

$$k^2 = h_D^2 + \left(\frac{a}{2}\right)^2 \Rightarrow k = \sqrt{h_D^2 + \left(\frac{a}{2}\right)^2} = \sqrt{\sqrt{113}^2 + \left(\frac{14}{2}\right)^2}$$

$$= \sqrt{113 + 49} = \underline{\underline{\sqrt{162}\,m}}$$