

Gerade Körper

Allgemein gilt:

$$A_O = 2A_G + A_M \quad V = G * h_K$$

Würfel:

$$A_M = 4 * a^2 \quad A_O = 6 * a^2 \quad V = a^3 \quad e = a * \sqrt{3}$$

Quadrat-Säule:

$$A_M = 4 * a * h_K \quad A_O = 2 * a^2 + 4 * a * h_K \quad V = a^2 * h_K$$

Rechteck-Säule:

$$A_M = 2 * (a * h_K + b * h_K) \quad A_O = 2 * (a * b + a * h_K + b * h_K)$$

(Quader)

$$e = \sqrt{a^2 + b^2 + c^2} \quad V = a * b * h_K$$

Kreis-Säule:

$$A_M = p * 2r * h_K \quad A_M = p * d * h_K \quad V = p * r^2 * h_K \quad V = p * \frac{d^2}{4} * h_K$$

(Zylinder)

$$A_O = 2 * p * r^2 + p * 2r * h_K \quad \text{oder} \quad A_O = p * 2r * (r + h_K)$$

Spitzkörper

quadratische

$$A_M = 2 * a * h_s \quad A_O = a^2 + 2 * a * h_s \quad V = \frac{a^2 * h_K}{3}$$

Pyramide:

$$h_s^2 = \left(\frac{a}{2}\right)^2 + h_K^2 \quad (\text{Pythagoras})$$

$$S_K^2 = \left(\frac{a}{2}\right)^2 + h_s^2 \quad (\text{Pythagoras}) \quad S_K^2 = \frac{d^2}{4} + h_K^2 \quad (\text{Pythagoras})$$

$$h_K^2 = h_s^2 - \left(\frac{a}{2}\right)^2$$

$$h_K^2 = s^2 - \left(\frac{e}{2}\right)^2 = s^2 - \left(\frac{a * \sqrt{2}}{2}\right)^2$$

quadratischer

$$A_M = 2 * (a_G + a_D) * h_s \quad A_O = a_G^2 + 2 * (a_G + a_D) * h_s + a_D^2$$

Pyramidenstumpf:

$$V = \frac{h_K}{3} * (a_G^2 + a_G * a_D + a_D^2) \quad h_s^2 = \left(\frac{a_G - a_D}{2}\right)^2 + h_K^2 \quad (\text{Pythagoras})$$