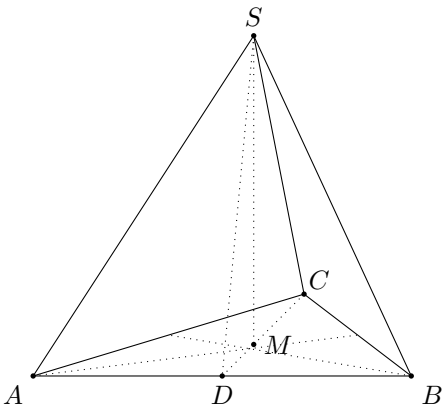
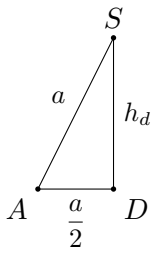
Berechnungen am Tetraeder



Höhe eines Dreiecks

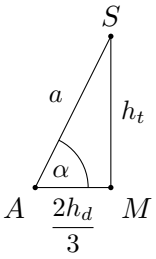


$$a^2 = h_d^2 + \left(\frac{a}{2}\right)^2$$

$$h_d = \sqrt{a^2 - \left(\frac{a}{2}\right)^2}$$

$$= \frac{\sqrt{3}}{2}a$$

Flächen-Kanten-Winkel

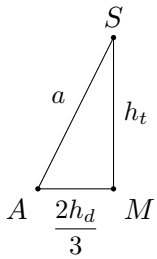


$$\cos\alpha = \frac{2h_d}{3a} = \frac{\sqrt{3}a}{3a} = \frac{\sqrt{3}}{3}$$

$$\alpha = \arccos\frac{\sqrt{3}}{3}$$

$$\approx 54{,}73561^\circ$$

Höhe des Tetraeders

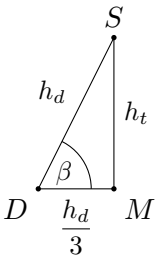


$$a^2 = h_t^2 + \left(\frac{2h_d}{3}\right)^2$$

$$h_t = \sqrt{a^2 - \left(\frac{\sqrt{3}a}{3}\right)^2}$$

$$= \frac{\sqrt{6}}{3}a$$

Flächenwinkel



$$\cos\beta = \frac{h_d}{3h_d} = \frac{1}{3}$$

$$\beta = \arccos\frac{1}{3}$$

$$\approx 70{,}52878^\circ$$