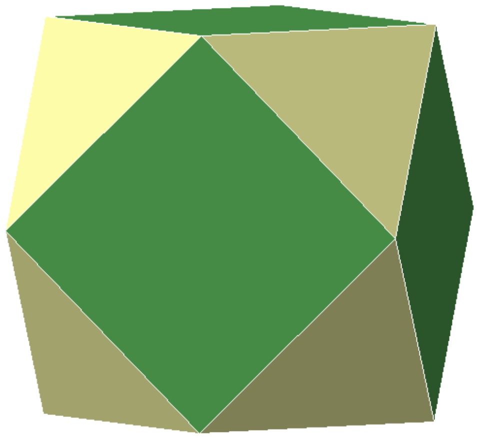
Archimedische Körper

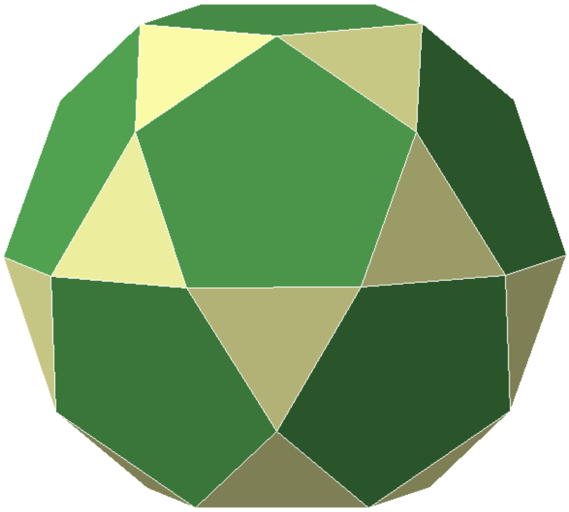
Einige Archimedische Körper kann man recht deutlich aus den Platonischen Körpern erzeugen

durch Abschneiden der Ecken bis zur Mitte einer jeden Kante

vom Würfel/Oktaeder



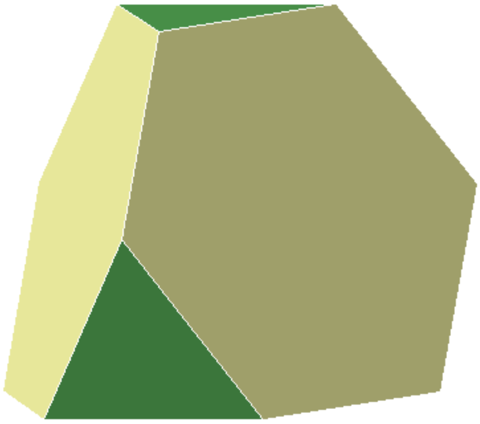
vom Dodekaeder/Ikosaeder



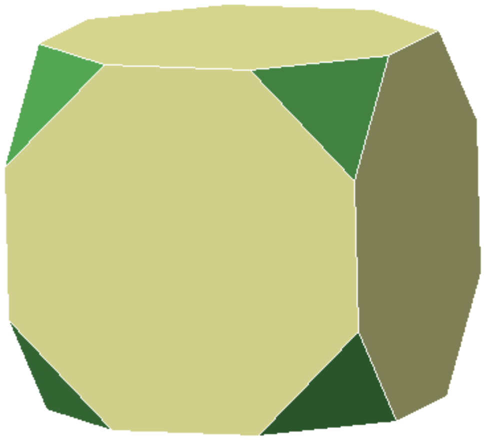
Schneidet man die Ecken des Tetraeders bis zur Mitte ab, erhält man einen Oktaeder.

durch Abschneiden der Ecken („stumpfen“)
Dabei werden aus den Flächen des Platonischen Körpers mit *n* Ecken neue regelmäßige Vielecke mit 2*n* Ecken.

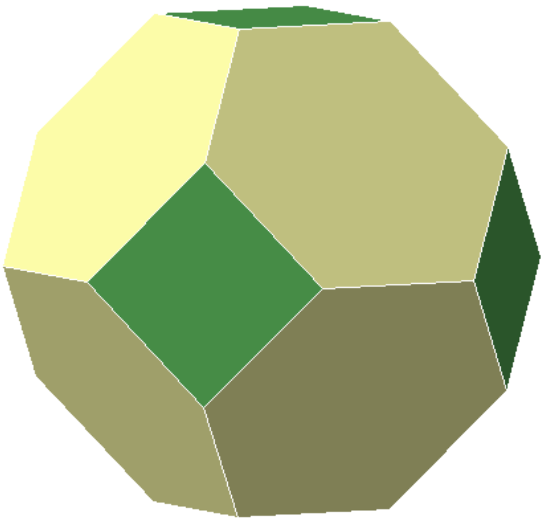
vom Tetraeder



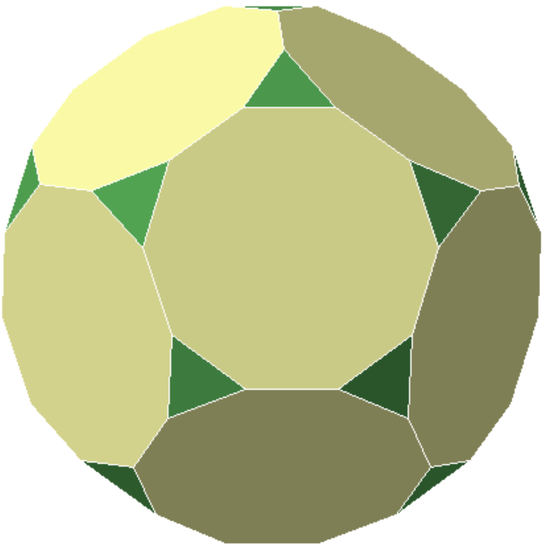
vom Würfel



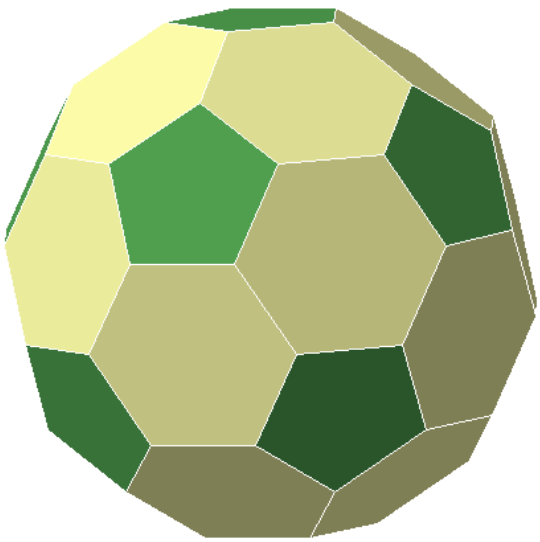
vom Oktaeder



vom Dodekaeder

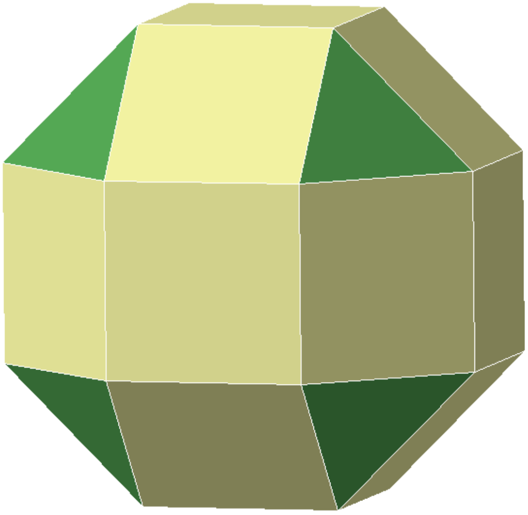


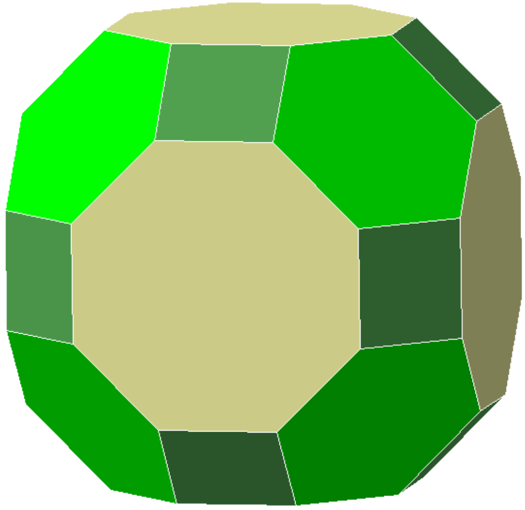
vom Ikosaeder



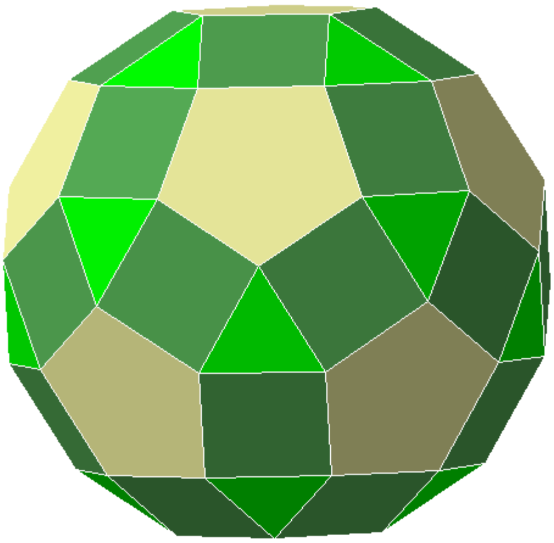
Weitere Archimedische Körper

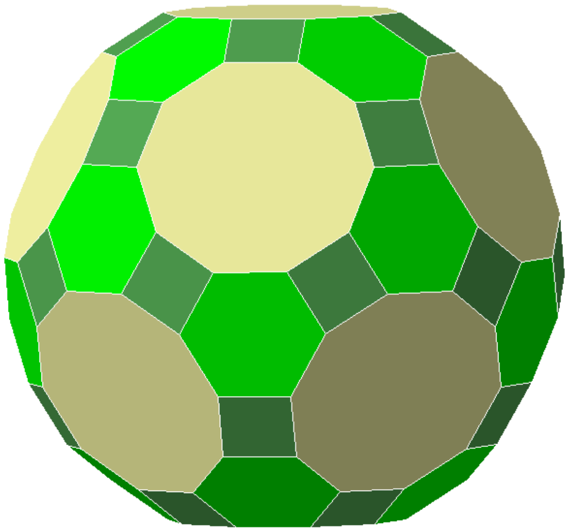
vom Würfel Ecken und Kanten abschneiden

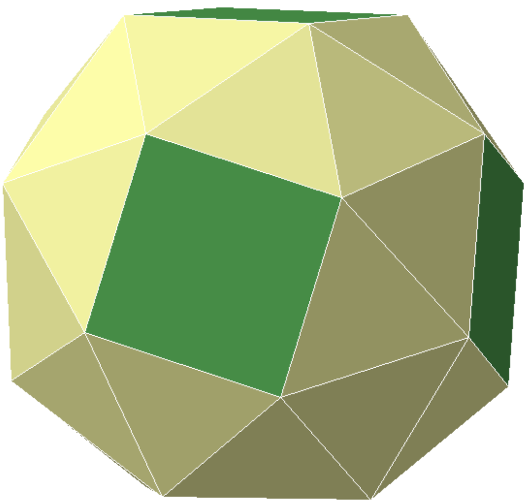


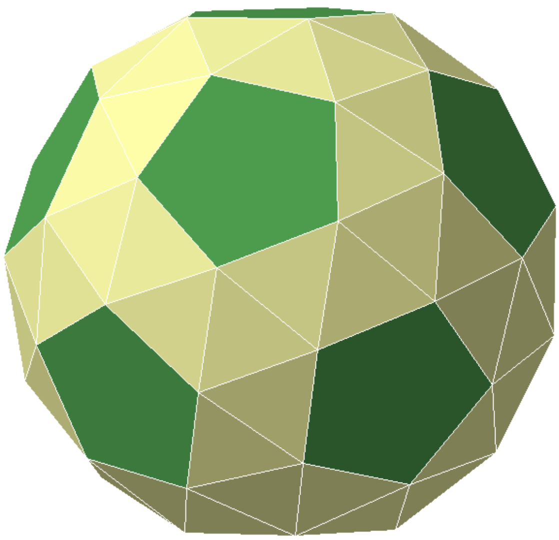


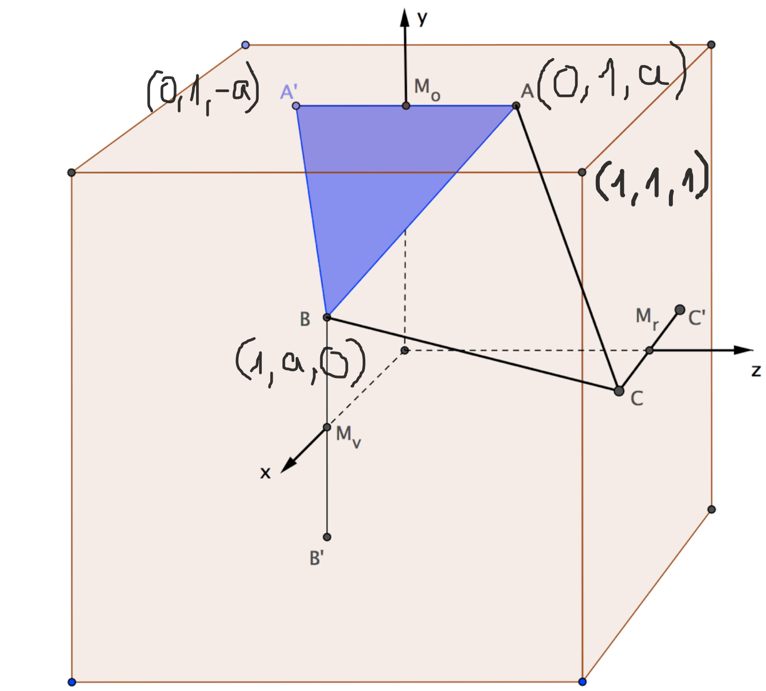
vom Dodekaeder Ecken und Kanten abschneiden

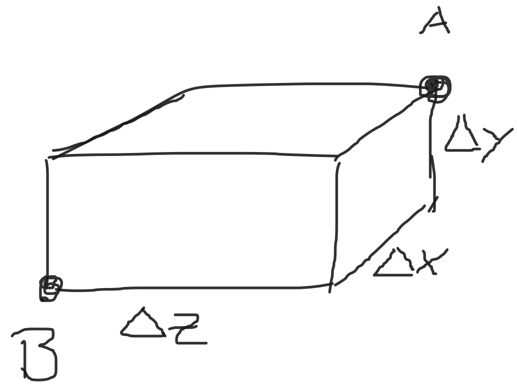












A(0,1,a) A'(0, 1,-a)   B(1,a,0) B'(1,-a, 0) C(a,0,1) C'(-a, 0, 1)

$$|AA'| = |AB| \Rightarrow 2a = \sqrt{(0-1)^2 + (1-a)^2 + (a-0)^2}$$

$$\underbrace{(2a)^2}_{4a^2} = 1 + 1 - 2a + \underbrace{a^2 + a^2}_{2a^2}$$

$$2a^2 + 2a - 2 = 0 \quad |:2$$

$$a^2 + a - 1 = 0$$

$$a = -\frac{1}{2} \pm \sqrt{\frac{1}{4} + 1} = -\frac{1}{2} \pm \sqrt{\frac{5}{4}}$$

$$a = -\frac{1}{2} \underset{(-)}{+} \frac{1}{2}\sqrt{5}$$ geometrisch nicht sinnvoll

$$a = \frac{-1+\sqrt{5}}{2} = \frac{\sqrt{5}-1}{2} = \varphi$$