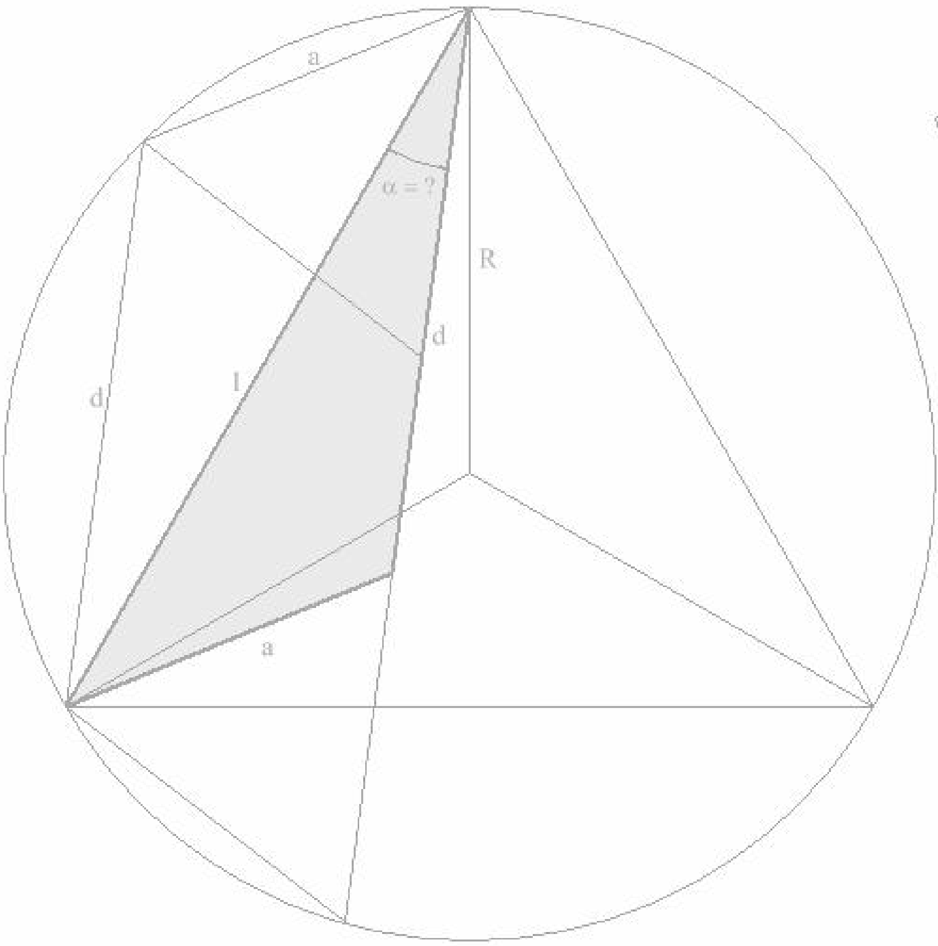

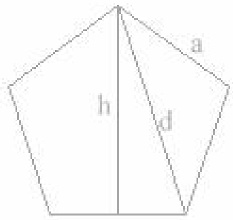

Pentagon:

$$d = \underbrace{\frac{1+\sqrt{5}}{2}}_{k_1} a \quad \text{(sectio aurea!)} \qquad k_1 \approx 1.618$$

Tetrahedron:

$$R = \frac{\sqrt{6}}{4} l$$

Dodecahedron:

$$R = \frac{a}{4}\sqrt{3}\left(1+\sqrt{5}\right)$$

$$\Rightarrow a = \frac{4R}{\sqrt{3}\left(1+\sqrt{5}\right)}$$

Tetrahedron + Dodecahedron:

$$a = \frac{4\sqrt{6}}{4\sqrt{3}\left(1+\sqrt{5}\right)} l$$

$$l = \underbrace{\frac{1+\sqrt{5}}{\sqrt{2}}}_{k_2} a \qquad k_2 \approx 2.288$$

Triangle:

$$\cos(\alpha) = \frac{d^2 + l^2 - a^2}{2dl}$$

All together:

$$\cos(\alpha) = \frac{k_1^2 a^2 + k_2^2 a^2 - a^2}{2k_1 k_2 a^2} = \frac{k_1^2 + k_2^2 - 1}{2k_1 k_2} = \cdots$$

$$\cos(\alpha) = \frac{7 + 3\sqrt{5}}{\sqrt{2}\left(6 + 2\sqrt{5}\right)} \approx 0{,}925615$$

$$\Rightarrow \underline{\underline{\alpha \approx 22.239^\circ}}$$

Diameter of the hexagon (equal to the width of a square sheet of paper the **corner modules** are to be cut out from):

$$d_{corner} = 2a$$

Inset of lower edge at one side:

$$b = \underbrace{\frac{\sin(\alpha)}{\sin(2/3\pi - \alpha)}}_{k_3} r \qquad k_3 \approx 0.382$$

Diameter of the hexagon (equal to the width of a square sheet of paper the **lock modules** are to be cut out from):

$$d_{lock} = 4b = 4k_3 r = \underbrace{2k_3}_{k_4} d_{corner} \qquad k_4 \approx 0.764$$