



$$V = \frac{1}{3} S_{\text{осн}} \cdot H$$

$$\frac{OH}{H} = \text{ctg} \alpha; \quad OH = H \cdot \text{ctg} \alpha$$

$$OH = \frac{1}{3} BH; \quad BH = 3OH = 3H \cdot \text{ctg} \alpha$$

$$\begin{aligned} BH &= \frac{\sqrt{3}}{2} AB; \quad AB = \frac{2}{\sqrt{3}} BH = \\ &= \frac{2}{\sqrt{3}} \cdot 3H \text{ctg} \alpha = \frac{6}{\sqrt{3}} H \cdot \text{ctg} \alpha = \frac{6\sqrt{3}}{3} H \text{ctg} \alpha = \\ &= 2\sqrt{3} H \text{ctg} \alpha \end{aligned}$$

$$S = \frac{AB^2 \sqrt{3}}{4} = \frac{8 \cdot 3 \cdot H^2 \cdot \text{ctg}^2 \alpha \sqrt{3}}{4} = 6\sqrt{3} H^2 \text{ctg}^2 \alpha$$

$$\begin{aligned} V &= \frac{1}{3} \cdot 6\sqrt{3} H^2 \text{ctg}^2 \alpha \cdot H = 2\sqrt{3} H^3 \text{ctg}^2 \alpha = \\ &= \frac{2\sqrt{3} H^3}{\text{tg}^2 \alpha} \end{aligned}$$

Формулы: в равностороннем треугольнике
центр O делит BH в отношении 2:1,
считая от B

$$h = \frac{\sqrt{3}}{2} a; \quad S = \frac{a^2 \sqrt{3}}{4};$$