

3.27 Frustum of a Regular Pyramid

Base and top side lengths: $\begin{cases} a_1, a_2, a_3, \dots, a_n \\ b_1, b_2, b_3, \dots, b_n \end{cases}$

Height: h

Slant height: m

Area of bases: S_1, S_2

Lateral surface area: S_L

Perimeter of bases: P_1, P_2

Scale factor: k

Total surface area: S

Volume: V

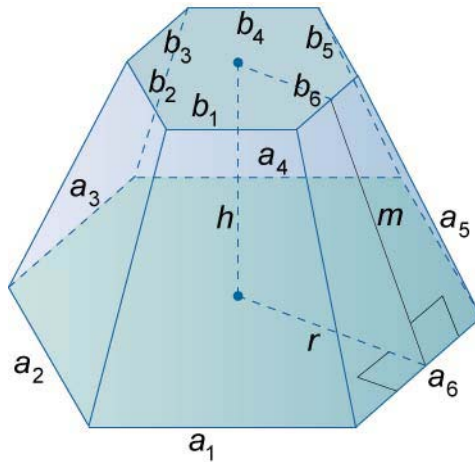


Figure 42.

298.
$$\frac{b_1}{a_1} = \frac{b_2}{a_2} = \frac{b_3}{a_3} = \dots = \frac{b_n}{a_n} = \frac{b}{a} = k$$

$$299. \quad \frac{S_2}{S_1} = k^2$$

$$300. \quad S_L = \frac{m(P_1 + P_2)}{2}$$

$$301. \quad S = S_L + S_1 + S_2$$

$$302. \quad V = \frac{h}{3} (S_1 + \sqrt{S_1 S_2} + S_2)$$

$$303. \quad V = \frac{hS_1}{3} \left[1 + \frac{b}{a} + \left(\frac{b}{a} \right)^2 \right] = \frac{hS_1}{3} [1 + k + k^2]$$