

3.33 Frustum of a Right Circular Cone

Radius of bases: R, r

Height: H

Slant height: m

Scale factor: k

Area of bases: S_1, S_2

Lateral surface area: S_L

Total surface area: S

Volume: V

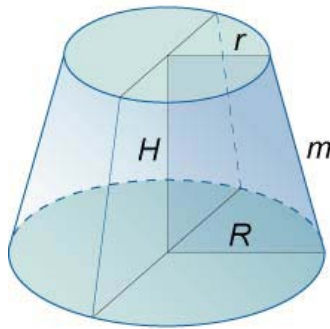


Figure 50.

$$333. \quad H = \sqrt{m^2 - (R - r)^2}$$

$$334. \quad \frac{R}{r} = k$$

$$335. \quad \frac{S_2}{S_1} = \frac{R^2}{r^2} = k^2$$

$$336. \quad S_L = \pi m(R + r)$$

$$337. \quad S = S_1 + S_2 + S_L = \pi[R^2 + r^2 + m(R + r)]$$

$$338. \quad V = \frac{h}{3}(S_1 + \sqrt{S_1 S_2} + S_2)$$

$$339. \quad V = \frac{hS_1}{3} \left[1 + \frac{R}{r} + \left(\frac{R}{r} \right)^2 \right] = \frac{hS_1}{3} [1 + k + k^2]$$