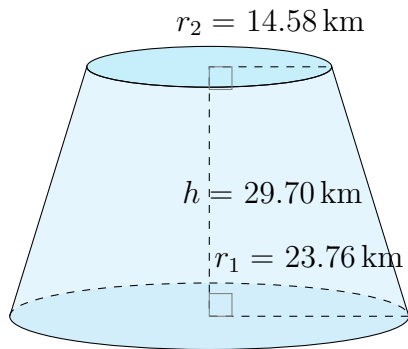# Surface Area and Volume of Conical Frustums (B)
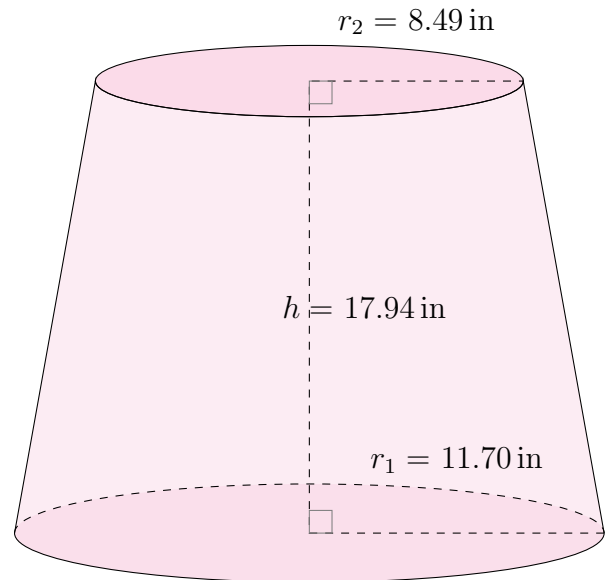
Calculate the surface area and volume for each conical frustum.

Surface Area $= \pi(r_1 + r_2)\sqrt{(r_1-r_2)^2 + h^2} + \pi r_1{}^2 + \pi r_2{}^2$ Volume $= \dfrac{\pi}{3}h(r_1{}^2 + r_2{}^2 + r_1r_2)$

1.

$r_2 = 14.58\,\text{km}$

$h = 29.70\,\text{km}$

$r_1 = 23.76\,\text{km}$

2.

$r_2 = 8.49\,\text{in}$

$h = 17.94\,\text{in}$

$r_1 = 11.70\,\text{in}$

3.

$r_2 = 0.74\,\text{yd}$

$h = 4.09\,\text{yd}$

$r_1 = 3.97\,\text{yd}$

4.

$r_2 = 2.88\,\text{cm}$

$h = 3.81\,\text{cm}$

$r_1 = 4.09\,\text{cm}$

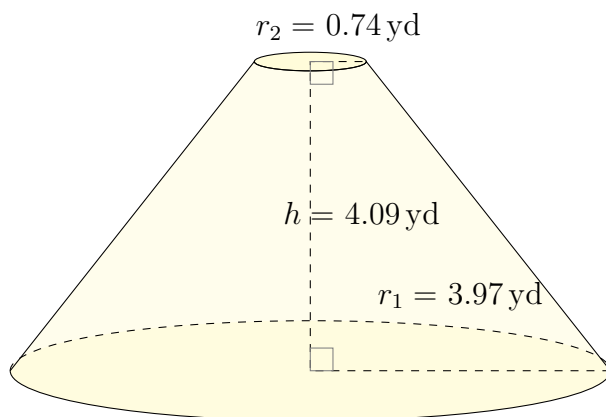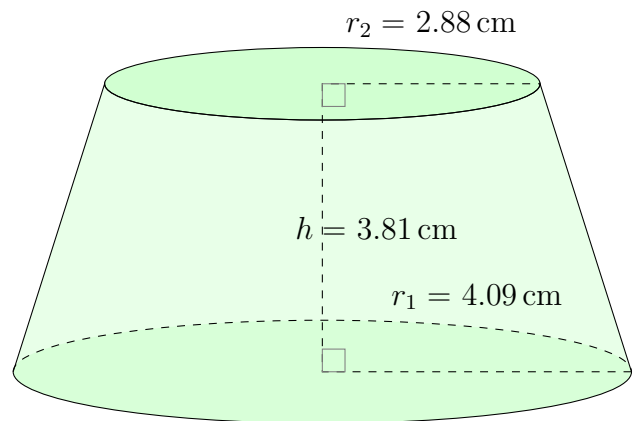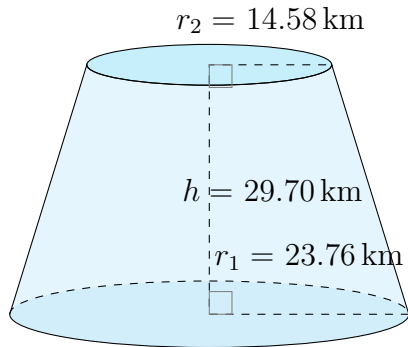## Surface Area and Volume of Conical Frustums (B) Answers

Calculate the surface area and volume for each conical frustum.

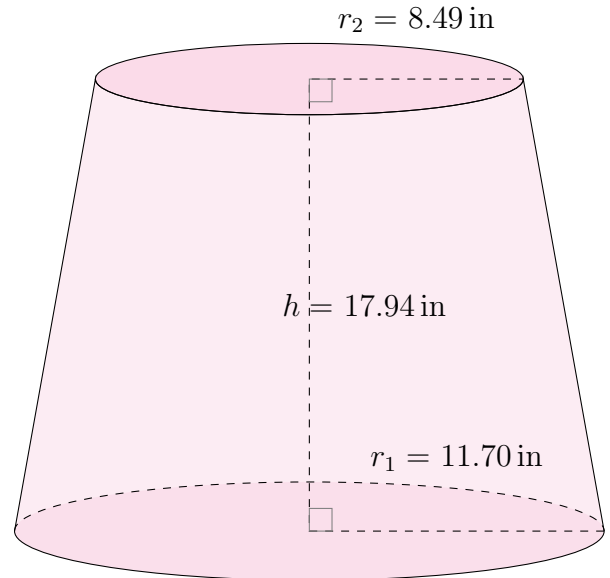Surface Area $= \pi(r_1 + r_2)\sqrt{(r_1-r_2)^2 + h^2} + \pi r_1{}^2 + \pi r_2{}^2$ Volume $= \dfrac{\pi}{3}h(r_1{}^2 + r_2{}^2 + r_1 r_2)$
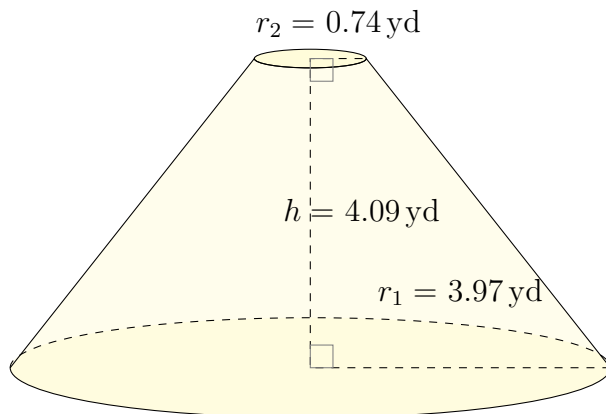
1.

$r_2 = 14.58\,\text{km}$

$h = 29.70\,\text{km}$

$r_1 = 23.76\,\text{km}$

Surface Area: $6185.69\,\text{km}^2$
Volume: $34{,}943.92\,\text{km}^3$

2.

$r_2 = 8.49\,\text{in}$

$h = 17.94\,\text{in}$

$r_1 = 11.70\,\text{in}$

Surface Area: $1812.48\,\text{in}^2$
Volume: $5792.01\,\text{in}^3$

3.

$r_2 = 0.74\,\text{yd}$

$h = 4.09\,\text{yd}$

$r_1 = 3.97\,\text{yd}$

Surface Area: $128.35\,\text{yd}^2$
Volume: $82.43\,\text{yd}^3$

4.

$r_2 = 2.88\,\text{cm}$

$h = 3.81\,\text{cm}$

$r_1 = 4.09\,\text{cm}$
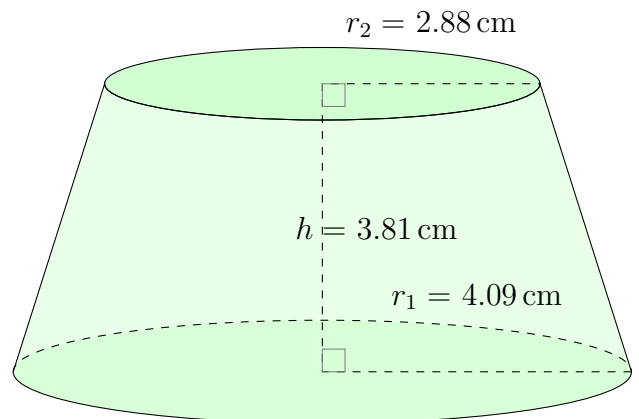
Surface Area: $166.14\,\text{cm}^2$
Volume: $146.83\,\text{cm}^3$