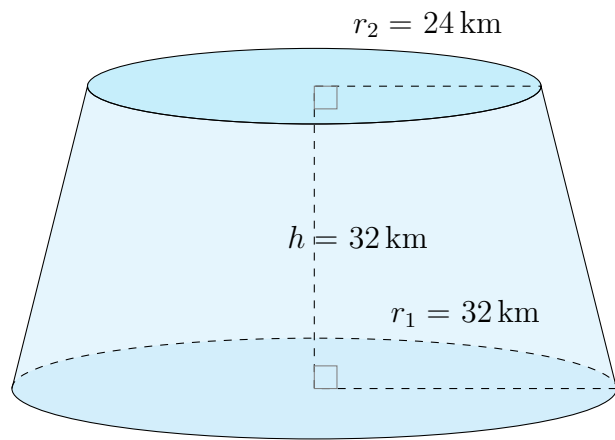# Surface Area and Volume of Conical Frustums (D)
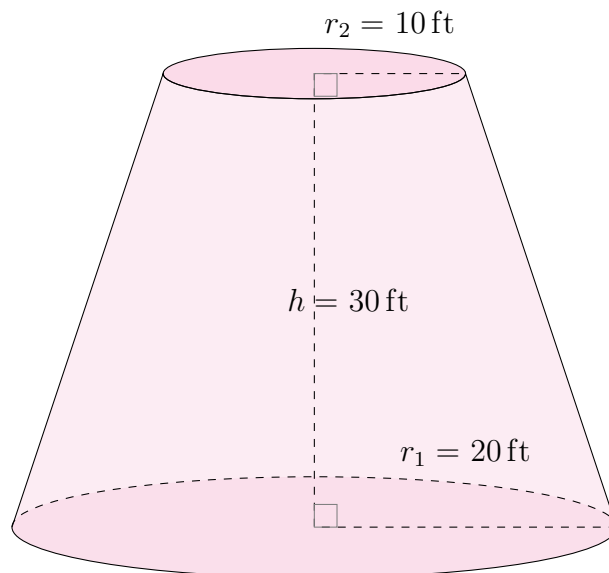
Calculate the surface area and volume for each conical frustum.

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.

$r_2 = 24\,\text{km}$

$h = 32\,\text{km}$

$r_1 = 32\,\text{km}$

2.

$r_2 = 10\,\text{ft}$

$h = 30\,\text{ft}$

$r_1 = 20\,\text{ft}$

3.

$r_2 = 12\,\text{ft}$

$h = 24\,\text{ft}$

$r_1 = 18\,\text{ft}$

4.
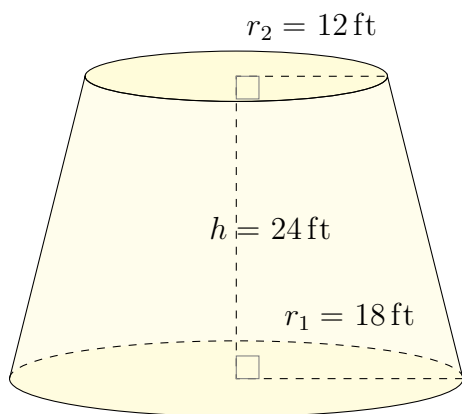
$r_2 = 14\,\text{m}$

$h = 42\,\text{m}$

$r_1 = 21\,\text{m}$

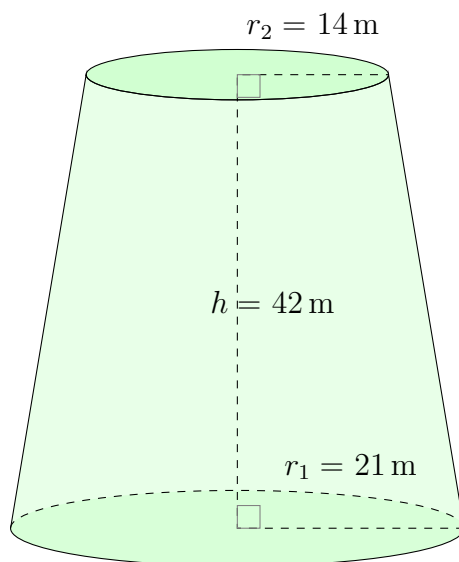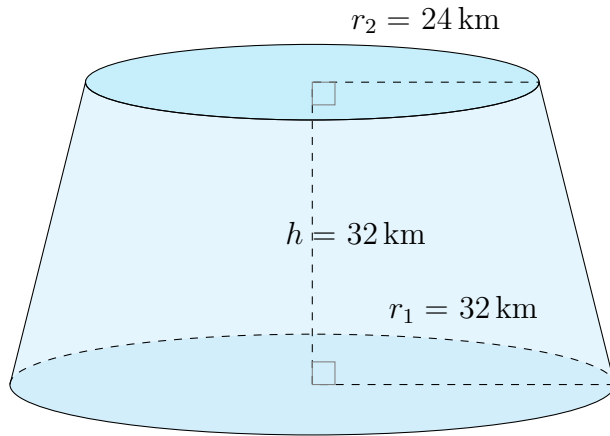## Surface Area and Volume of Conical Frustums (D) Answers

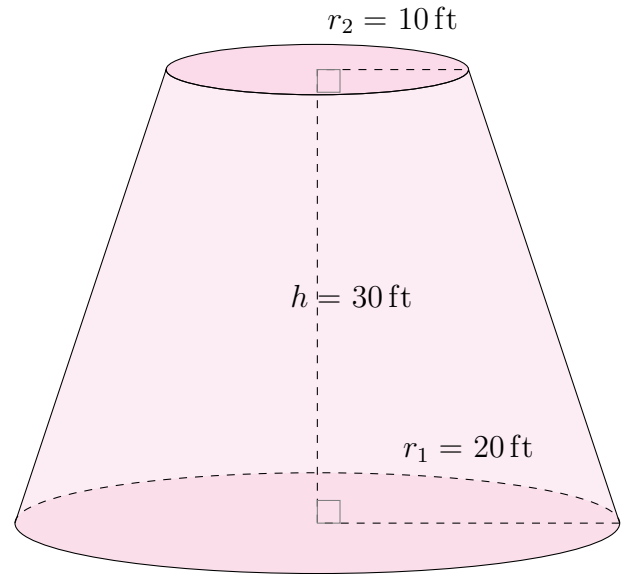### Calculate the surface area and volume for each conical frustum.

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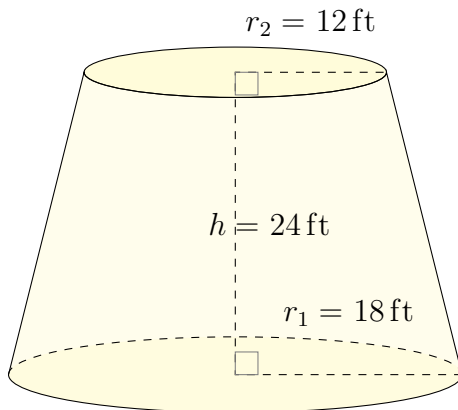
1.

$r_2 = 24\,\text{km}$

$h = 32\,\text{km}$

$r_1 = 32\,\text{km}$

Surface Area: $10{,}830\,\text{km}^2$
Volume: $79{,}352\,\text{km}^3$

2.

$r_2 = 10\,\text{ft}$

$h = 30\,\text{ft}$

$r_1 = 20\,\text{ft}$

Surface Area: $4551\,\text{ft}^2$
Volume: $21{,}991\,\text{ft}^3$

3.

$r_2 = 12\,\text{ft}$

$h = 24\,\text{ft}$

$r_1 = 18\,\text{ft}$

Surface Area: $3802\,\text{ft}^2$
Volume: $17{,}191\,\text{ft}^3$

4.

$r_2 = 14\,\text{m}$

$h = 42\,\text{m}$

$r_1 = 21\,\text{m}$
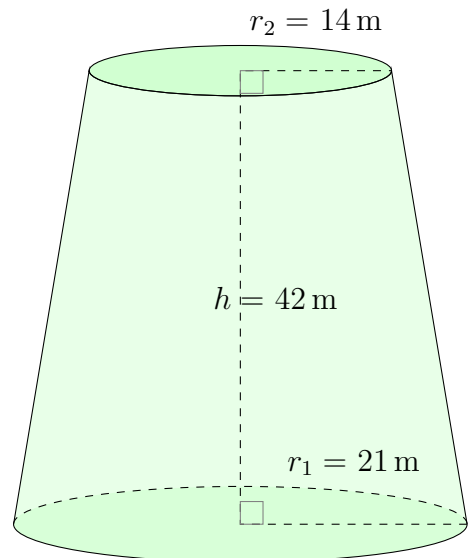
Surface Area: $6683\,\text{m}^2$
Volume: $40{,}948\,\text{m}^3$