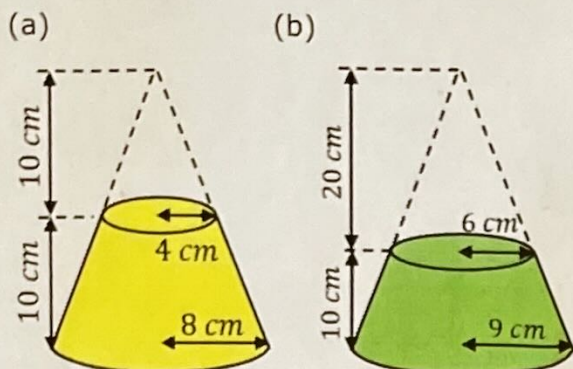


Volume and Surface Area of Frustums

Find the volume of each of these frustums.



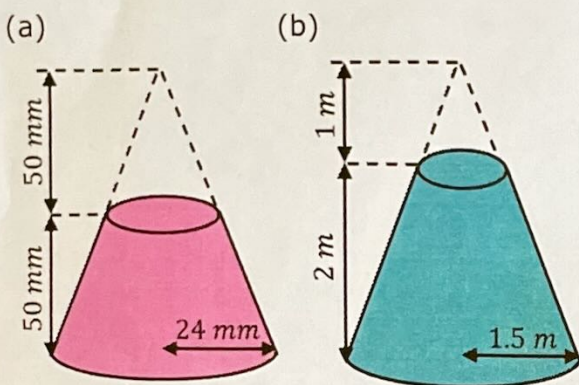
$$(a) \frac{1}{3}\pi \times 8^2 \times 20 - \frac{1}{3}\pi \times 4^2 \times 10$$

$$= \frac{1120\pi}{3} \text{ cm}^3 \text{ or } 1170 \text{ cm}^3$$

$$(b) \frac{1}{3}\pi \times 9^2 \times 30 - \frac{1}{3}\pi \times 6^2 \times 20$$

$$= 570\pi \text{ cm}^3 \text{ or } 1790 \text{ cm}^3$$

Find the volume of each of these frustums.



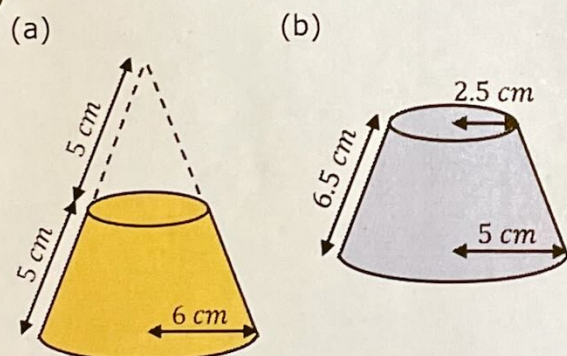
$$(a) \frac{1}{3}\pi \times 24^2 \times 100 - \frac{1}{3}\pi \times 12^2 \times 50$$

$$= 16800\pi \text{ mm}^3 \text{ or } 52800 \text{ mm}^3$$

$$(b) \frac{1}{3}\pi \times 1.5^2 \times 3 - \frac{1}{3}\pi \times 0.5^2 \times 1$$

$$= \frac{13\pi}{6} \text{ m}^3 \text{ or } 6.81 \text{ m}^3$$

Find the curved surface area and total surface area of each of these frustums.



$$(a) \text{ Curved Surface Area}$$

$$= \pi \times 6 \times 10 - \pi \times 3 \times 5$$

$$= 45\pi \text{ cm}^2 \text{ or } 141 \text{ cm}^2$$

$$\text{Total Surface Area}$$

$$= 45\pi + \pi \times 3^2 + \pi \times 6^2$$

$$= 90\pi \text{ cm}^2 \text{ or } 282 \text{ cm}^2$$

$$(b) \text{ Curved Surface Area}$$

$$= \pi \times 5 \times 13 - \pi \times 2.5 \times 6.5$$

$$= \frac{195\pi}{4} \text{ cm}^2 \text{ or } 153 \text{ cm}^2$$

$$\text{Total Surface Area}$$

$$= \frac{195\pi}{4} + 2.5^2 \times \pi + 5^2 \times \pi$$

$$= 80\pi \text{ cm}^2 \text{ or } 251 \text{ cm}^2$$

$$378\pi = \frac{1}{3}\pi \times 9^2 \times 2h - \frac{1}{3}\pi \times 4.5^2 \times h$$

$$h = 8 \text{ cm}$$

The base diameter of a frustum is 18 cm and the top diameter is 9 cm. If the frustum has a volume of $378\pi \text{ cm}^3$, find its height.