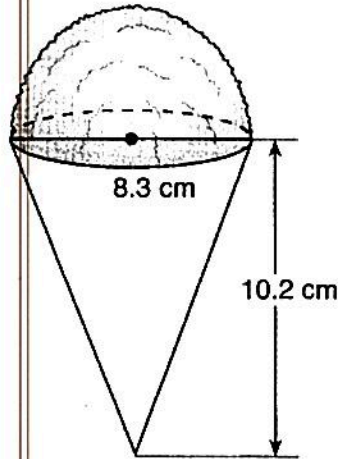**36** A snow cone consists of a paper cone completely filled with shaved ice and topped with a hemisphere of shaved ice, as shown in the diagram below. The inside diameter of both the cone and the hemisphere is 8.3 centimeters. The height of the cone is 10.2 centimeters.



8.3 cm

10.2 cm

The desired density of the shaved ice is 0.697 g/cm³, and the cost, per kilogram, of ice is $3.83. Determine and state the cost of the ice needed to make 50 snow cones.

$$V = \frac{1}{3}\pi r^2 h + \frac{1}{2}\left(\frac{4}{3}\pi r^3\right)$$

$$= \frac{1}{3}\pi \left(\frac{8.3}{2}\right)^2 (10.2) + \frac{2}{3}\pi \left(\frac{8.3}{2}\right)^3$$

$$\approx 183.961 + 149.693$$

$$\approx 333.65$$

$$\frac{\times 50}{16,682.7}\ cm^3 \left(\frac{.697\ g}{cm^3}\right) = 11627.8\ g$$

$$11.6279\ kg \cdot \frac{\$3.83}{kg} \approx 44.53$$