



Exercise 13D

Question 7:

Here, diameter of the lead shot = 3mm

$$\therefore \text{radius} = \left(\frac{3}{2}\right) \text{mm} = \left(\frac{0.3}{2}\right) \text{cm}$$

[1mm = 0.1cm]

$$\text{Now, number of lead shots} = \frac{\text{Volume of the cuboid}}{\text{Volume of 1 lead shot}}$$

$$= \left\{ \frac{(12 \times 11 \times 9)}{\frac{4}{3} \times \frac{22}{7} \times \left(\frac{0.3}{2}\right)^3} \right\}$$

$$= \left\{ \frac{(12 \times 11 \times 9)}{\frac{4}{3} \times \frac{22}{7} \times \frac{0.027}{8}} \right\}$$

$$= \left\{ \frac{12 \times 11 \times 9 \times 3 \times 7 \times 8}{4 \times 22 \times 0.027} \right\} = 84000$$

$$\therefore \text{number of lead shots} = 84000.$$

Question 8:

Here, radius of 1 lead ball = 1cm

and radius of sphere = 8cm

$$\therefore \text{Number of lead balls} = \frac{\text{Volume of the sphere}}{\text{Volume of 1 lead ball}}$$

$$= \frac{\left(\frac{4}{3} \pi R^3\right) \text{ cm}^3}{\left(\frac{4}{3} \pi r^3\right) \text{ cm}^3}$$

$$= \left\{ \frac{\frac{4}{3} \times \frac{22}{7} \times 8^3}{\frac{4}{3} \times \frac{22}{7} \times 1^3} \right\}$$

$$= \left\{ \frac{\frac{4}{3} \times \frac{22}{7} \times 512}{\frac{4}{3} \times \frac{22}{7} \times 1} \right\} = 512$$

$$\therefore \text{number of lead balls} = 512.$$

Question 9:

Here, radius of sphere=3cm

$$\text{Diameter of spherical ball}=0.6\text{cm} \quad \left[\because \text{radius} = \frac{D}{2} \right]$$

$$\text{Radius of spherical ball}=0.3\text{cm}$$

$$\begin{aligned} \therefore \text{Number of balls} &= \frac{\text{Volume of the sphere}}{\text{Volume of 1 small ball}} \\ &= \left\{ \frac{\frac{4}{3} \times \frac{22}{7} \times 3^3 \text{ cm}^3}{\frac{4}{3} \times \frac{22}{7} \times (0.3)^3 \text{ cm}^3} \right\} \\ &= \left\{ \frac{\frac{4}{3} \times \frac{22}{7} \times 27}{\frac{4}{3} \times \frac{22}{7} \times 0.027} \right\} = 1000 \end{aligned}$$

\therefore number of small balls obtained=1000.

***** END *****