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(Affiliated to CBSE up to +2 Level)

CLASS: VIII **SUB.: MATHS (NCERT BASED)** **DATE: 07-10-2020**

EXERCISE: 11.4

1. Given a cylindrical tank, in which situation will you find surface area and in which situation volume.

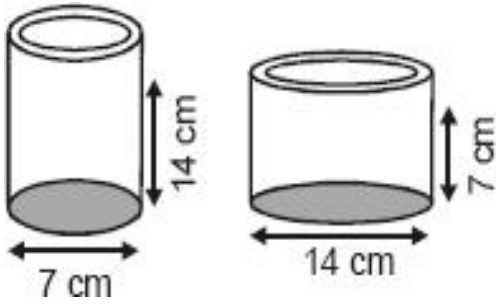
(a) To find how much it can hold.

(b) Number of cement bags required to plaster it.

(c) To find the number of smaller tanks that can be filled with water from it.

Sol. (a) volume (b) Surface area (c) Volume

2. Diameter of cylinder A is 7 cm, and the height is 14 cm. Diameter of cylinder B is 14 cm and height is 7 cm. Without doing any calculations can you suggest whose volume is greater? Verify by finding the volume of both the cylinders. Check whether the cylinder with greater volume also has greater surface area?



Sol. The heights and diameters of these cylinders A and B are interchanged.

We know that,

Volume of cylinder = $\pi r^2 h$

If measures of r and h are same, then the cylinder with greater radius will have greater area.

$$\text{Radius of cylinder A} = \frac{7}{2}\text{cm}$$

$$\text{Radius of cylinder B}\left(\frac{14}{2}\right)\text{cm} = 7\text{cm}$$

As the radius of cylinder B is greater, therefore, the volume of cylinder B will be greater.

Let us verify by calculating the volume of both the cylinders.

Volume of cylinder A = $\pi r^2 h$

$= \left(\frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 14\right) cm^3 = 539\ cm^3$

Volume of cylinder B = $\pi r2h$

$= \left(\frac{22}{7} \times 7 \times 7 \times 7\right) cm^3 = 1078\ cm^3$

Volume of cylinder B is greater.

= Surface are of cylinder A = $2\pi r(r + h)$

$= \left[2 \times \frac{22}{7} \times \frac{7}{2}\left(\frac{7}{2} + 14\right)\right] cm^2$

$= 385\ cm^2$

Surface area of cylinder B = $2\pi r(r + h)$

$= \left[2 \times \frac{22}{7} \times 7 \times (7 + 7)\right] cm^2$

$= (44 \times 14) cm^2$

$= 616\ cm^2$

Thus, the surface area of cylinder B is also greater than the surface area of cylinder A.

3. Find the height of a cuboid whose base area is 180 cm^2 and volume is 900 cm^3?

Sol. Volume of the cuboid = 900 cm^3

$\Rightarrow$ (Area of the base) × Height = 900 cm^3 180 × Height = 900

$\Rightarrow$ Height = $\frac{900}{180} = 5$

Hence, the height of the cuboid is 5 cm.