Surface Areas and Volumes Ex.16.2 Q15

Answer :

We have to find the volume of cork dust filled between the two vessels.

Radius of outer vessel $(r_2) = 8$ cm

Radius of inner vessel $(r_1) = 7$ cm

Height of the cylinder $(h) = 42$ cm

So, volume of cork dust filled between the two vessels,

$= \pi h(r_2^2 - r_1^2)$

$= (3.14)(42)(64-49)$

$= 1978.2 \text{ cm}^2$

$= \boxed{1980 \text{ cm}^3}$

Volume of cork dust filled between the two vessels is 1980 cm^3.

Surface Areas and Volumes Ex.16.2 Q16

Answer :

We have to find the mass of the roller.

Radius of inner cylinder $(r_1) = 27$ cm

Radius of outer cylinder

$(r_2) = (27+9)$ cm

$= 36$ cm

Length of the cylinder $(h) = 100$ cm

So, volume of iron,

$= \pi h(r_2^2 - r_1^2)$

$= (3.14)(100)(1296-729)$

$= 178038 \text{ cm}^3$

It is given that, 1 cm^3 of iron has a mass of 7.8 gm.

So the mass of iron used,

$= (178038)(7.8)$ gm

$= 1388696.4$ gm

$= \boxed{1388.7 \text{ kg}}$

Surface Areas and Volumes Ex.16.2 Q17

Answer :

We have to find the inner surface area of a vessel which is in the form of a hemisphere mounted by a hollow cylinder.

Radius of hemisphere and cylinder $(r) = 7$ cm

Total height of vessel $(r + h) = 13$ cm

So, the inner surface area of a vessel,

$= 2\pi r(r + h)$

$= 2\left(\frac{22}{7}\right)(7)(13)$ cm^2

$= \boxed{572 \text{ cm}^2}$

Surface Areas and Volumes Ex.16.2 Q18

Answer :

We have to find the total surface area of a toy which is a cone surmounted on a hemisphere.

Radius of hemisphere and the base of the cone $(r) = 3.5$ cm

Height of the cone,

$(l) = (15.5 - 3.5)$ cm

$= 12$ cm

So, total surface area of toy,

$= \pi r(l + 2r)$

$= \left(\frac{22}{7}\right)(3.5)(12 + 7)$ cm^2

$= \boxed{209 \text{ cm}^2}$

********** END **********