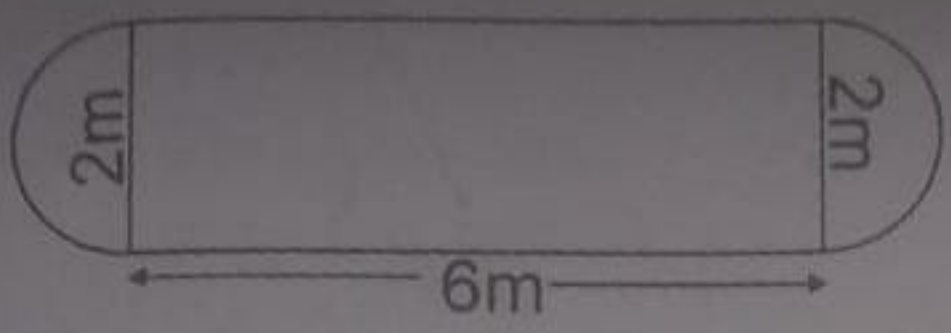
Qn. 6 The picture below shows a petrol tank. How many litres does it hold?



Ans The petrol tank is the shape of a cylinder fined with hemispheres on both end faces.

Length of the cylinders = 4 m

Radius = 1 m

Volume of cylinder $= \pi \times 1 \times 1 \times 4\pi$ cu.m

$= 4\pi$ m^3

Radius of the hemisphere = 1 m

Volume of 2 hemispheres $= 2 \times \frac{2}{3}\pi r^3 = \frac{4}{3}\pi$ cu.m

Total volume of the tank $= 4\pi + \frac{4}{3}\pi$

$= \frac{12\pi + 4\pi}{3} = \frac{16\pi}{3} = \frac{16 \times 3.14}{3} = 16.74 m^3$

Capacity of tank in liters = 16.74 x 1000

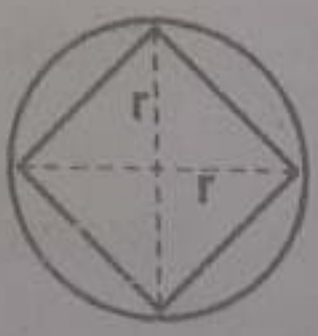
= 16740 ltr

Qn. 7

A solid sphere is cut into two hemispheres. From this spheres a maximum size of a square pyramid and cone are cut off. What is the ratio of their volumes?

Ans Volume of square pyramid $= \frac{1}{3}a^2h$

$a = \sqrt{2}r \quad h = r$



Volume $= \frac{1}{3} \times (\sqrt{2}r)^2 \times r = \frac{2}{3}r^3$

Radius of cone = r

height of the cone = r

Volume $= \frac{1}{3}\pi r^2 \times r = \frac{1}{3}\pi r^3$

The ratio of their volume $= \frac{2}{3}r^3 : \frac{1}{3}\pi r^3$

$= 2 : \pi = 2 : 3.14$