

GEOMETRY - CBSE

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1. The radius of a sphere (in cm) whose volume is $12\pi cm^3$, is
 - (a) 3
 - (b) $3\sqrt{3}$
 - (c) $3^{\frac{2}{3}}$
 - (d) $3^{\frac{1}{3}}$
2. In Figure ??, the angle of elevation of the top of a tower from a point C on the ground, which is $30m$ away from the foot of the tower, is 30° . Find the height of the tower.

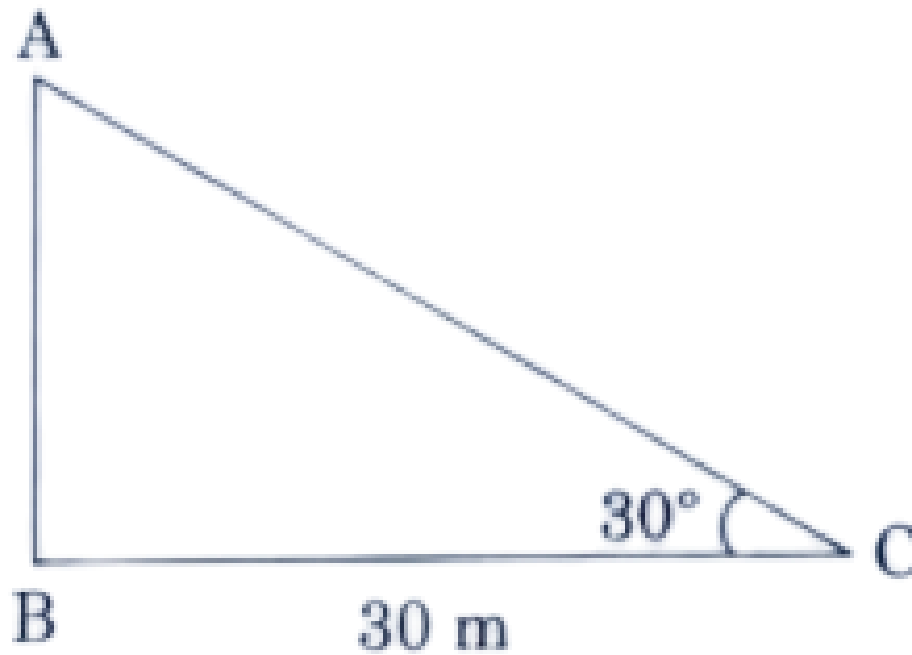


Figure 1

3. A cone and a cylinder have the same radii but the height of the cone is 3 times that of the cylinder. Find the ratio of their volumes.
4. In Figure ??, $ABCD$ is a parallelogram. A semicircle with centre O and the diameter AB has been drawn and it passes through D . If $AB = 12\text{cm}$ and $OD \perp AB$, then find the area of the shaded region. (Use $\pi = 3.14$)

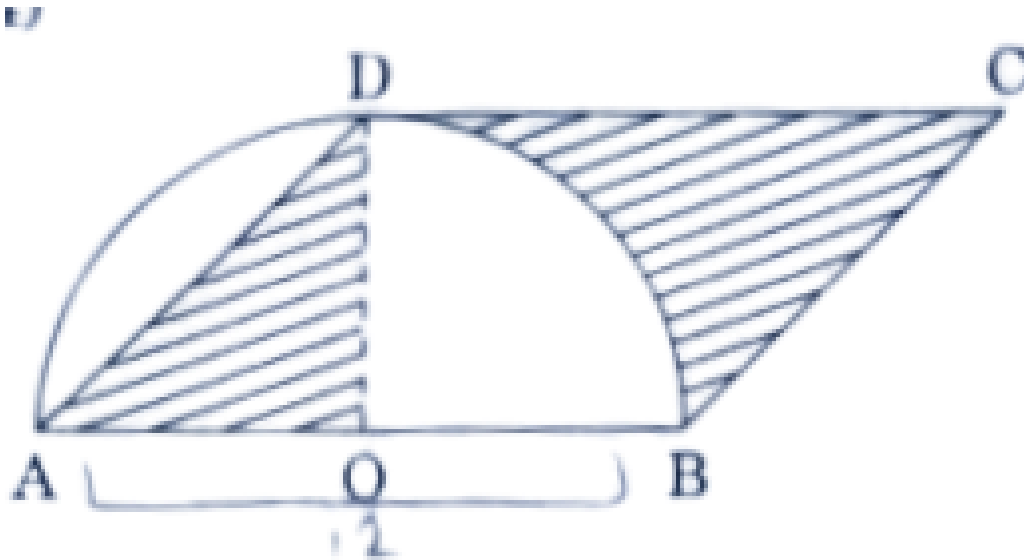


Figure 2

5. A statue $1.6m$ tall, stands on the top of a pedestal. From a point on the ground, the angle of elevation of the top of the statue is 60° and from the same point the angle of elevation of the top of the pedestal is 45° . Find the height of the pedestal. (Use $\sqrt{3} = 1.73$)
6. In a cylindrical vessel of radius $10cm$, containing some water, 9000 small spherical balls are dropped which are completely immersed in water which raises the water level. If each spherical ball is of radius $0.5cm$, then find the rise in the level of water in the vessel.
7. If a line is drawn parallel to one side of a triangle to intersect the other two sides at distinct points, prove that the other two sides are divided in the same ratio.
8. If $\tan^{-1}\left(\frac{y}{x}\right) = \log \sqrt{x^2 + y^2}$, prove that $\frac{dy}{dx} = \frac{x+y}{x-y}$.
9. If $y = e^{a \cos^{-1} x}$, $-1 < x < 1$, then show that

$$(1 - x^2) \frac{d^2y}{dx^2} - x \frac{dy}{dx} - a^2 y = 0 \quad (1)$$