Volumes - Lesson 9

## Composite Volumes - Calculator

## LI

- Calculate the Volume of a Composite Solid.

SC

- Sphere, cone, prism, pyramid, cylinder, cube and cuboid volume formulae.


## Reminder on Volumes



## Example 1

Find the volume of this composite solid made up of a cone on top of a cylinder (2 d. p.):


Cone


$$
r=6 \mathrm{~cm}, \mathrm{~h}=15 \mathrm{~cm}
$$

$$
V_{\text {CONE }}=\pi \times r^{2} \times h \div 3 \quad V_{\text {CYL }}=\pi \times r^{2} \times h
$$

$$
V_{\text {CONE }}=\pi \times 6^{2} \times 15 \div 3
$$

$$
V_{c x .}=\pi \times 6^{2} \times 23
$$

$$
V_{\text {CONE }}=565.486 \ldots \mathrm{~cm}^{3}
$$

$$
V_{\text {CYL. }}=2601.238 \ldots \mathrm{~cm}^{3}
$$

$$
\begin{aligned}
V_{\text {TOTAL }} & =V_{\text {CONE }}+V_{\text {CYL }} \\
V_{\text {TOTAL }} & =565.486 \ldots+ \\
V_{\text {TOTAL }} & =3166.73 \mathrm{~cm}^{3}
\end{aligned}
$$

$$
V_{\text {Total }}=565.486 \ldots+2601.238 \ldots
$$

## Example 2

Find the volume of this composite solid made up of a cuboid and half a cylinder (2 d. p.) :


Cuboid

$L=14 \mathrm{~m}, B=6 \mathrm{~m}$, $H=6 \mathrm{~m}$
$V_{\text {cuB. }}=L \times B \times H$
$V_{\text {cub. }}=14 \times 6 \times 8$
$\mathrm{V}_{\text {cub. }}=672 \mathrm{~m}^{3}$
Half Cylinder

$r=3 \mathrm{~m}, \mathrm{~h}=14 \mathrm{~m}$
$V_{1 / 2 c y}=\pi \times r^{2} \times h \div 2$
$V_{1 / 2 \text { cyl. }}=\pi \times 3^{2} \times 14 \div 2$
$\underline{\mathrm{V}_{1 / 2 \mathrm{cyL}}=197.920 \ldots \mathrm{~m}^{3}}$
$\mathrm{V}_{\text {TOTAL }}=\mathrm{V}_{\text {CUB. }}+\mathrm{V}_{1 / 2 \text { CYL. }}$

$$
V_{\text {TOTAL }}=672+197.920 \ldots
$$

$$
V_{\text {TOTAL }}=869.92 \mathrm{~m}^{3}
$$


2)

3)

4)

5)

6)

(2nsmers

