## Volumes and surface areas of spheres and cones

| solid | diagram | volume | surface area |
| :---: | :---: | :---: | :---: |
| sphere | $V=\frac{4}{3} \pi r^{3}$ | $A=4 \pi r^{2}$ |  |
| cone | $V=\frac{1}{3} \pi r^{2} h$ | $V=\pi r l+\pi r^{2}$ |  |
| $\pi r l$ is the area of the curved |  |  |  |
| surface, and $\pi r^{2}$ is the area of |  |  |  |
| the circular base |  |  |  |

