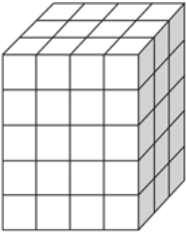
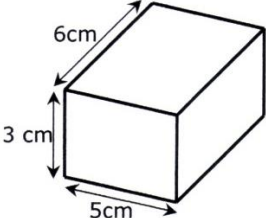
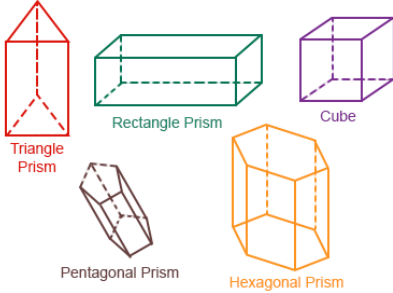
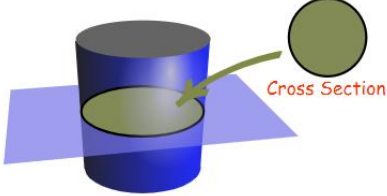
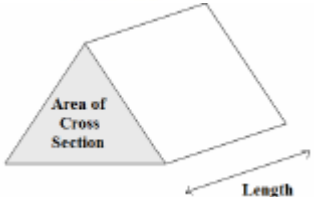
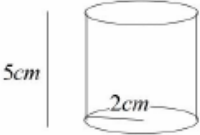
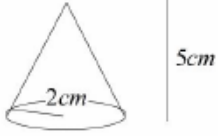
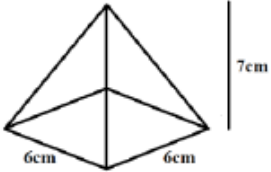
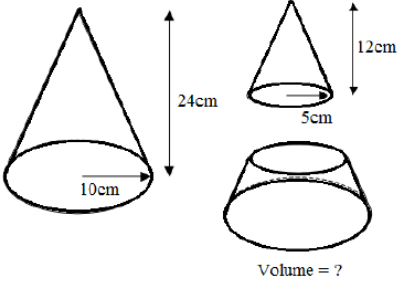


## Topic: Volume

Topic/Skill	Definition/Tips	Example
1. Volume	<p>Volume is a measure of the amount of space inside a solid shape.</p> <p>Units: <math>mm^3</math>, <math>cm^3</math>, <math>m^3</math> etc.</p>	
2. Volume of a Cube/Cuboid	<p><math>V = \text{Length} \times \text{Width} \times \text{Height}</math>  <math>V = L \times W \times H</math></p> <p>You can also use the Volume of a Prism formula for a cube/cuboid.</p>	 <p>volume = <math>6 \times 5 \times 3</math>  <math>= 90 \text{ cm}^3</math></p>
3. Prism	A prism is a 3D shape whose <b>cross section is the same</b> throughout.	
4. Cross Section	The <b>cross section</b> is the <b>shape</b> that <b>continues</b> all the way <b>through the prism</b> .	
5. Volume of a Prism	<p><math>V = \text{Area of Cross Section} \times \text{Length}</math>  <math>V = A \times L</math></p>	
6. Volume of a Cylinder	$V = \pi r^2 h$	 <p><math>V = \pi(4)(5)</math>  <math>= 62.8 \text{ cm}^3</math></p>
7. Volume of a Cone	$V = \frac{1}{3} \pi r^2 h$	 <p><math>V = \frac{1}{3} \pi(4)(5)</math>  <math>= 20.9 \text{ cm}^3</math></p>

8. Volume of a Pyramid	$Volume = \frac{1}{3}Bh$ <p>where B = area of the base</p>	 $V = \frac{1}{3} \times 6 \times 6 \times 7 = 84cm^3$
9. Volume of a Sphere	$V = \frac{4}{3}\pi r^3$ <p>Look out for hemispheres – just halve the volume of a sphere.</p>	<p>Find the volume of a sphere with diameter 10cm.</p> $V = \frac{4}{3}\pi(5)^3 = \frac{500\pi}{3}cm^3$
10. Frustums	<p>A frustum is a solid (usually a cone or pyramid) with the <b>top removed</b>.</p> <p>Find the volume of the whole shape, then take away the volume of the small cone/pyramid removed at the top.</p>	 $V = \frac{1}{3}\pi(10)^2(24) - \frac{1}{3}\pi(5)^2(12)$ $= 700\pi cm^3$