Volume

FORMULAE LIST

The roots of $ax^2 + bx + c = 0$ are $x = \dfrac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

Sine rule: $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

Cosine rule: $a^2 = b^2 + c^2 - 2bc \cos A$ or $\cos A = \dfrac{b^2 + c^2 - a^2}{2bc}$

Area of a triangle: Area = $\frac{1}{2} ab \sin C$

Volume of a sphere: Volume = $\dfrac{4}{3}\pi r^3$

Volume of a cone: Volume = $\dfrac{1}{3}\pi r^2 h$

Volume of a Pyramid: Volume = $\dfrac{1}{3}Ah$

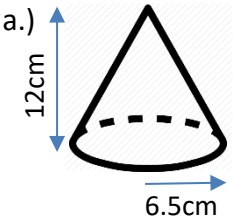
Standard deviation: $s = \sqrt{\dfrac{\sum(x - \bar{x})^2}{n-1}} = \sqrt{\dfrac{\sum x^2 - (\sum x)^2 / n}{n-1}}$, where n is the sample size.

national5maths.co.uk

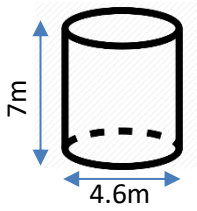
Volume

1. Calculate the volume of each shape:

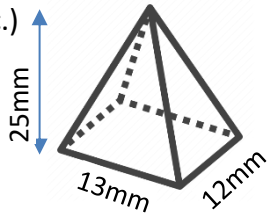
a.)



b.)



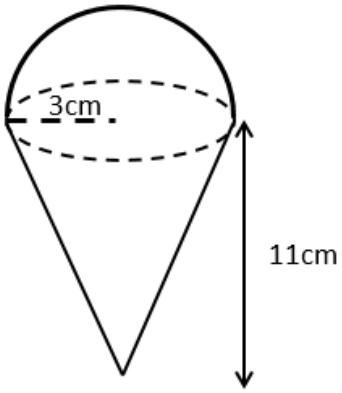
c.)



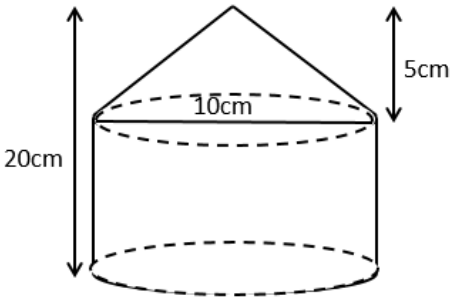
d.)

2. Calculate the volume of each compound shape:

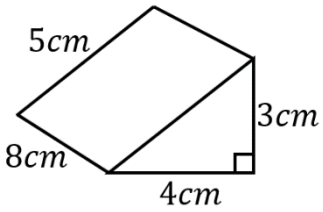
a.)



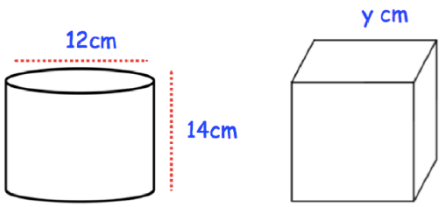
b.)



3. A baker wants to produce a triangular prism out of marzipan. They have $50cm^3$ of marzipan; can they make the prism?



13. A cylinder and a cube have the same volume. Find the length of y.



4. A pharmaceutical company makes vitamin pills in the shape of spheres of radius 0·5cm.

a) Calculate the volume of one pill. Give your answer correct to 2 significant figures.
The company decides to change the shape of each pill to a cylinder.

b) The new pill has the same volume as the original and its diameter is 1·4cm.
Calculate the height of the new pill.