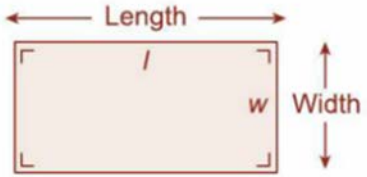
Area and Volume

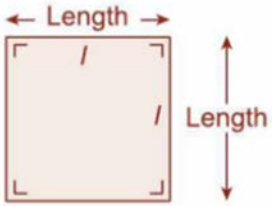
Rectangle



Area = (length × width) = $l \times w$

Perimeter = $2l + 2w$ **or** $2(l + w)$

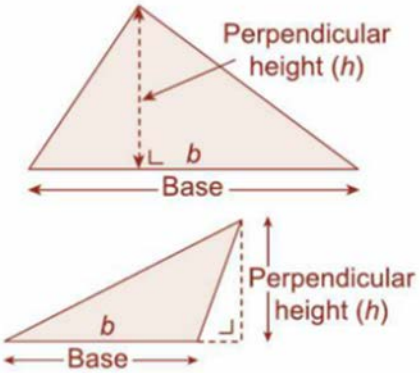
Square



Area = (length)^2 = l^2

Perimeter = $4l$

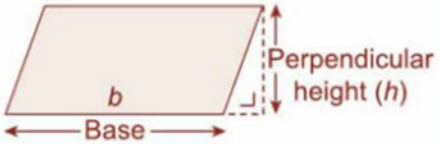
Triangle



Area = $\frac{1}{2}$ × base × perpendicular height

= $\frac{1}{2}bh$

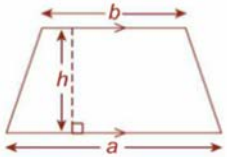
Parallelogram



Area = base × perpendicular height

= bh

Trapezium



Area = Half the sum of the lengths of the parallel sides (a and b) × perpendicular height between them

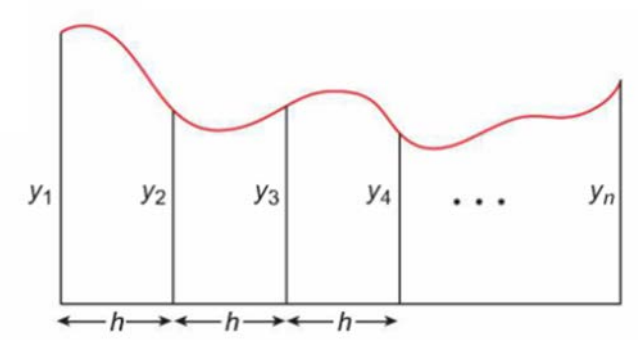
Area = $\frac{1}{2}(a + b)h$

or

Area = $\left(\frac{a+b}{2}\right)h$

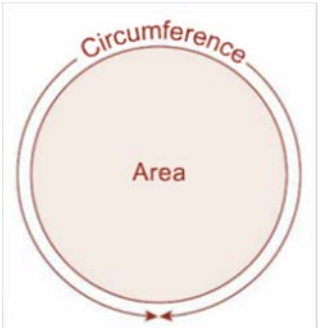
This formula appears on page 8 of *Formulae and Tables*.

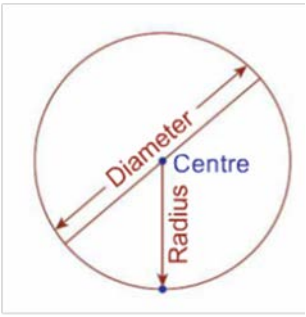
Trapezoidal Rule



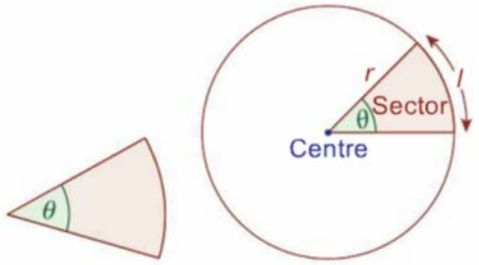
$$Area \approx \frac{h}{2}[y_1 + y_n + 2(y_2 + y_3 + y_4 + \cdots + y_{n-1})]$$

Circles



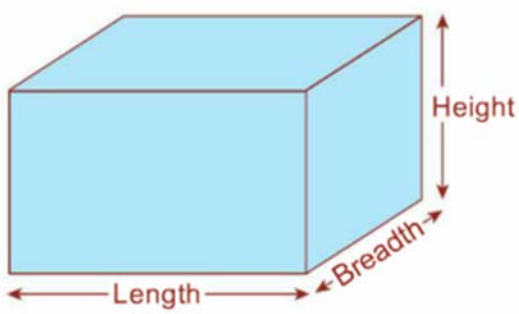


$$Area = \pi r^2$$
$$Circumference = 2\pi r$$

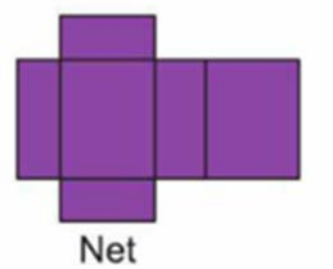


$$Area\ of\ Sector = \pi r^2 \times \frac{\theta}{360}$$
$$Length\ of Arc = 2\pi r \times \frac{\theta}{360}$$

Cuboid

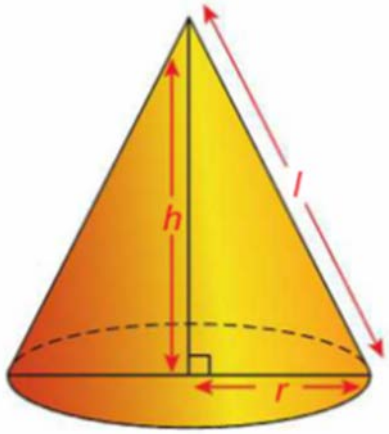


$$Volume = l \times b \times h$$



$$Surface\ Area\ = 2lb + 2bh + 2lh$$

Cone



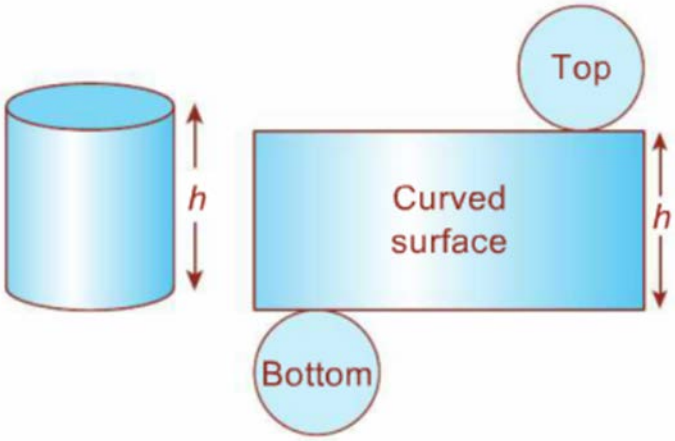
$$Volume\ = \frac{1}{3}\pi r^2 h$$

$$Curved\ Surface\ Area\ = \pi r l$$

$$Total\ Surface\ Area = \pi r l + \pi r^2$$

$$l^2 = h^2 + r^2$$

Cylinder

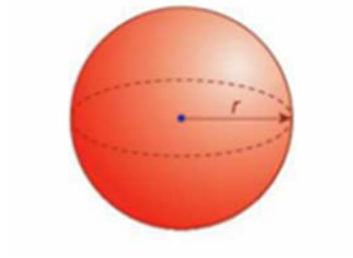


$$Curved\ Surface\ Area\ = 2\pi r h$$

$$Total\ Surface\ Area = 2\pi r h + 2\pi r^2$$

$$Volume\ = \pi r^2 h$$

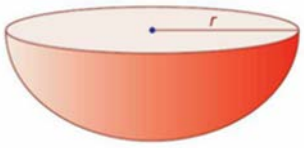
Sphere



$$Volume\ = \frac{4}{3}\pi r^3$$

$$Surface\ Area\ = 4\pi r^2$$

Hemisphere

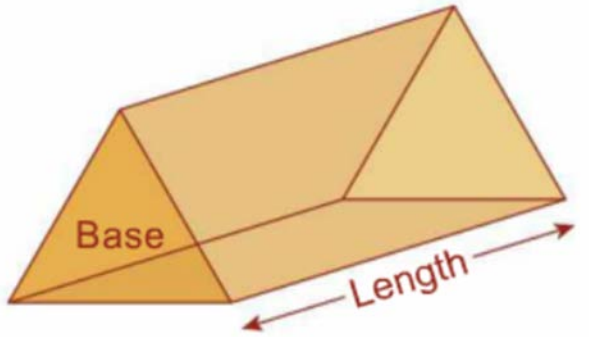


$$Volume\ = \frac{2}{3}\pi r^3$$

$$Surface\ Area = 2\pi r^2$$

$$Total\ Surface\ Area\ = 2\pi r^2 + \pi r^2$$

Prism



$$Volume\ = Area\ of\ base \times Length$$