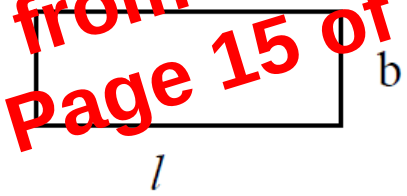
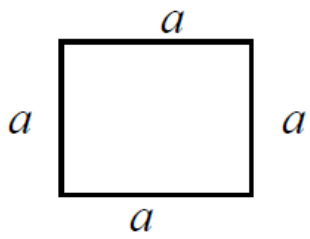
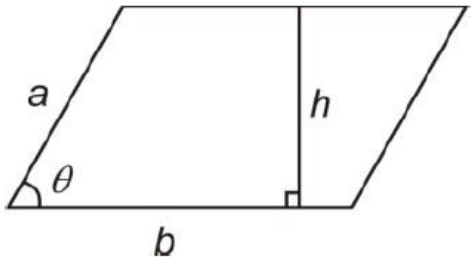
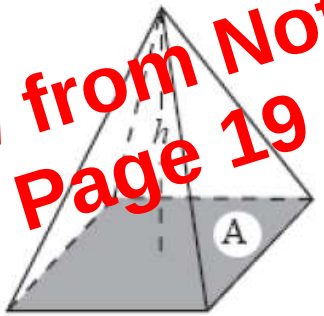
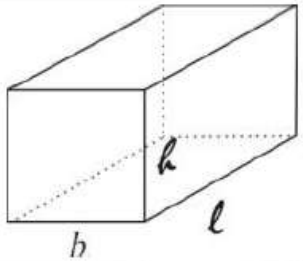
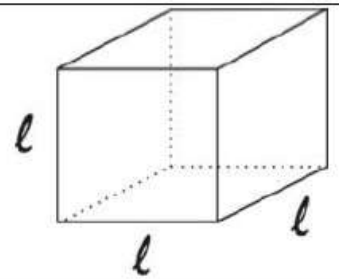
Percentages:

- Percent means per hundred.. To express one quantity as a percentage of another, first write the first quantity as a fraction of the second and then multiply by 100.
- Profit = S.P. – C.P.
- Loss = C.P. – S.P.
- Profit percentage = $\frac{SP-CP}{CP} \times 100$
- Loss percentage = $\frac{CP-SP}{CP} \times 100$
- where CP = Cost price and SP = Selling price

Area and Perimeter:

Figure	Diagram	Area	Perimeter
Rectangle		Area = $l \times b$	perimeter = $2(l + b)$
Square		Area = side × side = $a \times a$	perimeter = 4 × side = $4 \times a$
Parallelogram		Area = $b \times h$ Area = $ab \sin\theta$ where a, b are sides and θ is the included angle	perimeter = $2(a + b)$

Surface Area and Volume:

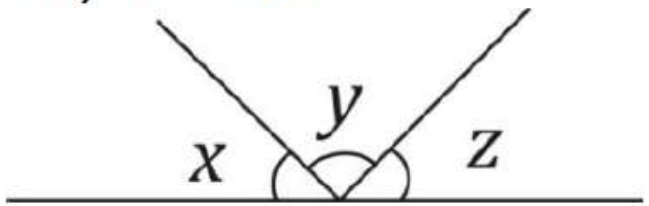
Pyramid		Base area + area of the shapes in the sides	Volume = $\frac{1}{3}$ × base area × perpendicular height
Cuboid		Surface area = $2(lb + bh + lh)$	Volume = $l \times b \times h$
Cube		Surface area = $6l^2$	Volume = l^3
Hemisphere		Curved surface area = = $2\pi\ r^2$	Volume = $\frac{2}{3}\pi r^3$

Geometry

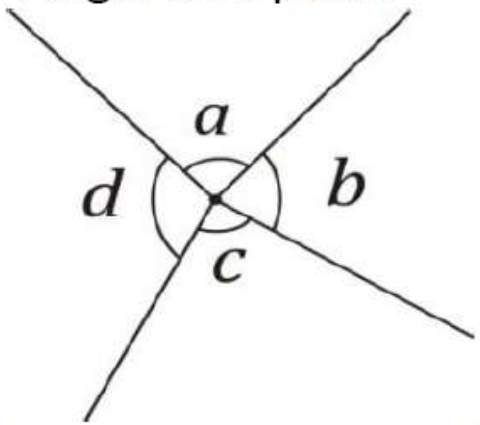
(a) Angles on a straight line

The angles on a straight line add up to 180°

$x + y + z = 180°$



(b) Angle at a point



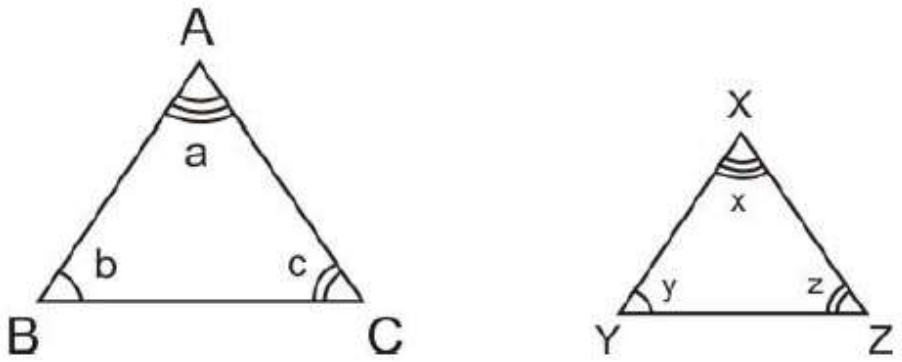
The angles at a point add up to 360°.

$a + b + c + d = 360°$

Similar Triangles:

- Two Triangles are similar if they satisfy one of the following three conditions.

i) The angles of one triangle are equal to the corresponding angles of the other triangle.



Δ ABC is similar to Δ XYZ because ∠a= ∠x; ∠b = ∠y and ∠c = ∠z

Midpoint / Length of a Line segment

- Let A(x_1, y_1) and B(x_2, y_2) be two points, their

$$\text{Midpoint} = \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

$$\text{Length} = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$$