PRIMARY MATHS SERIES

REVISION GUIDE FOR STANDARDS 7 AND 8

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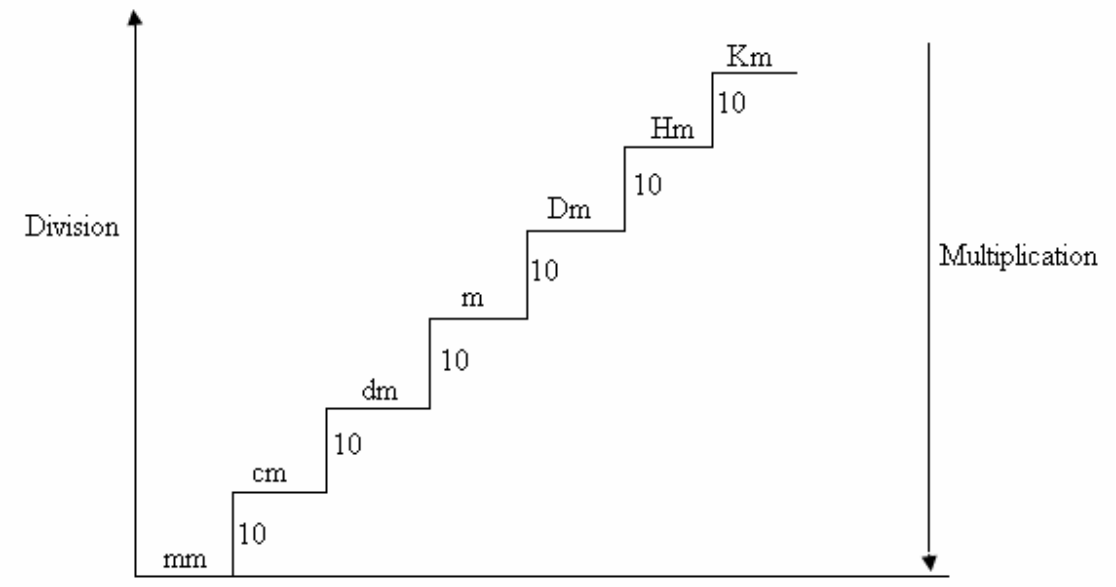
INTRODUCTORY 1

GENERAL MATHEMATICS FORMULAE

1.1 Length

The units of length that are used include the following:

- Millimetre (mm)
- Centimetre (cm)
- Decimetre (dm)
- Metre (m)
- Decametre (Dm)
- Hectometre (Hm)
- Kilometre (Km)

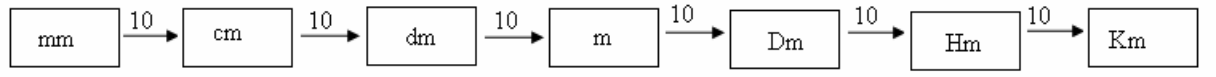


From the illustration:

- 10mm = 1cm
- 10cm = 1dm
- 10dm = 1m

- 10m = 1 Dm
- 10dm = 1Hm
- 10 Hm = 1Km

The relationship between the units of lengths may be clearly seen if the units are written with a 10 between them



So to find how many small units are equivalent to another, multiply the number of tens between the units, hence:

- Km 1
- Hm 10
- Dm 100
- M 1000
- Hm 10000
- cm 100000
- mm 1000000

1.2 Mass

- 1000 g = 1Kg
- 1000 Kg = 1Tonne
- 1000000 g = 1Tonne

1.3 Volume and Capacity

- 1 cm^3 = 1 Ml (Millilitre)
- 1000 cm^3 = 1 L (Litre)
- 100 cm^3 = 1 dl (decilitre)
- 1 m^3 = 1000 litre
- 1000000 cm^3 = 1 m^3

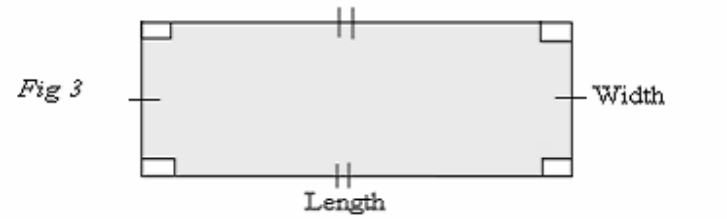
- 10 dl = 1 Litre
- 1000ml = 1 Litre

1.4 Time

- 60 Seconds = 1 Minute
- 60 Minutes = 1Hour
- 3600 Seconds = 1 Hour
- 24 Hours = 1 day
- 7 Days = 1 Week

1.5 Area

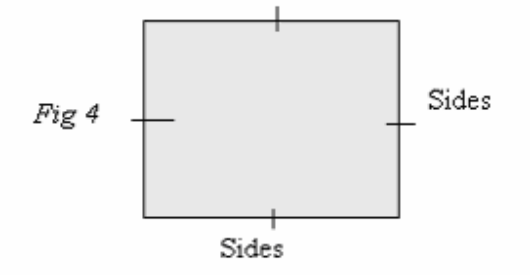
1.5.1 Rectangle



Area = Length x Width

A = L X W

1.5.2 Square

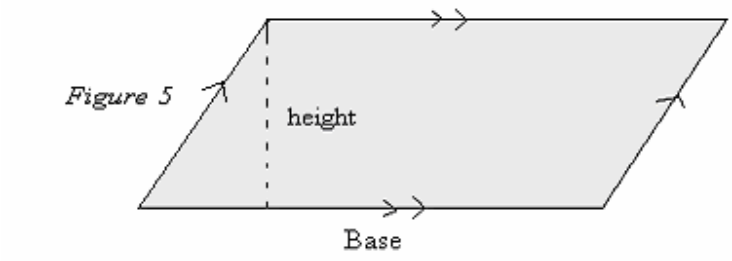


Area = Side x Side

A = S x S

A = S^2

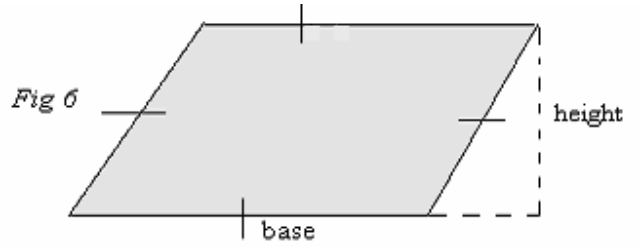
1.5.3 Parallelogram



A = base x Height

A = b x h

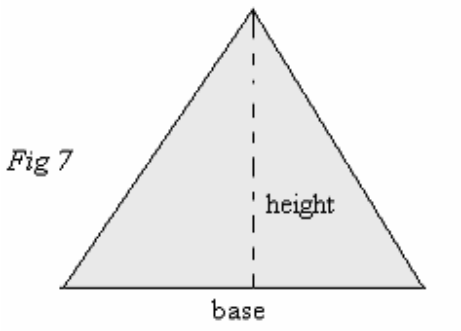
1.5.4 Rhombus



Area = base x height

A = b x h

1.5.5 Triangle



Area = ½ base x height

A = ½ bh

1.5.6 Trapezium

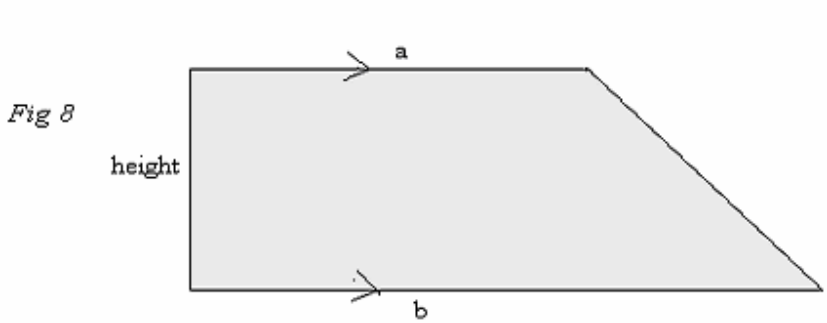


Fig 8

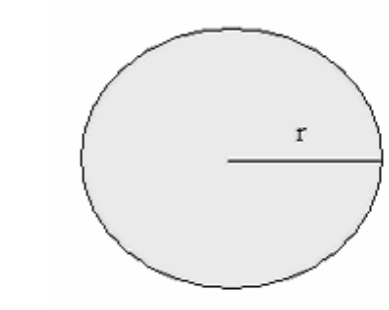
Area = ½ x sum of parallel x height

A = ½ (a + b) x h

A = ½ h (a + b)

1.5.7 Circle, half circle, quarter circle

a) Circle



Area = Π x radius x radius

A = Π x r x r

A = Πr^2

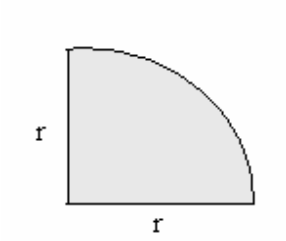
b) Half circle

Area = Area of a full circle ÷ 2

A = $\frac{\Pi r^2}{2}$

$$A = \frac{1}{2} \Pi r^2$$

c) Quarter circle



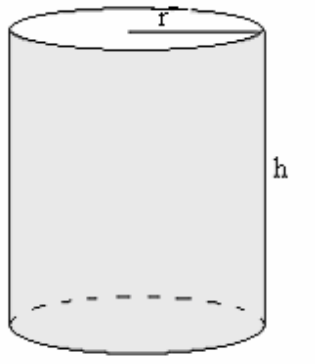
A = Area of the full circle ÷ 4

A = $\Pi r^2 \div 4$

A = $\frac{1}{4}\Pi r^2$

Note: $\Pi = \frac{22}{7}$ or 3.14 or $3\frac{1}{7}$

1.6 Surface Area



Cylinder

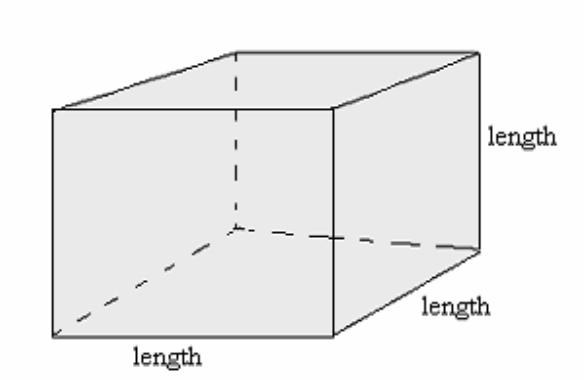
T.S.A = Area of cylinder ends + area of curved surface

= 2Πr2 + Πdh (if closed both sides)

T.S.A = Πr^2 + Πdh (if pen one end side)

T.S.A = Πdh (if open both ends/pipes)

Cube



T.S.A = Total area of all the six faces

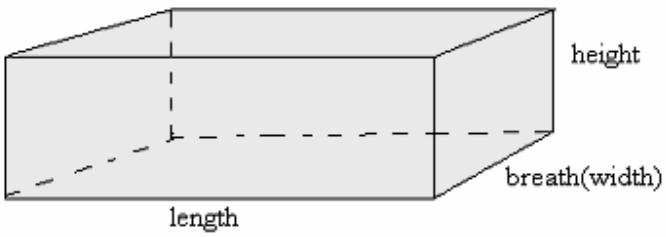
= 6 x L x L

= $6L^2$ (if closed)

or

= $5L^2$ (if open one end)

Cuboid



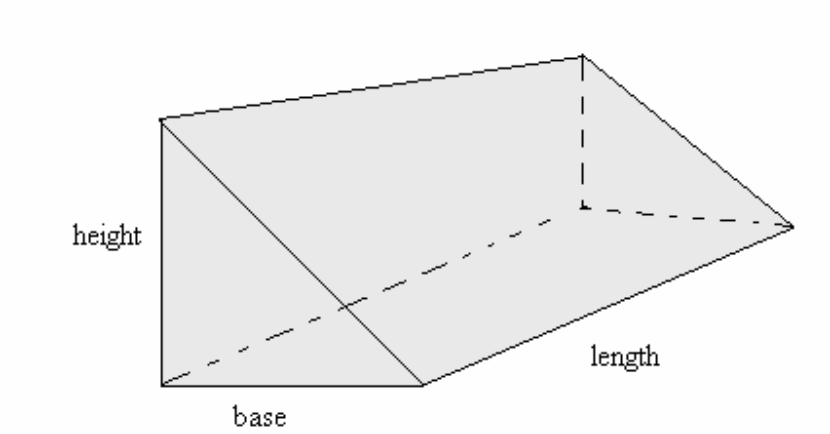
T.S.A = Total area for the six faces

= 2 (L x w) + 2 (L x h) + 2 (w x h)

or

= (L x w) + 2 (L x h) + 2(w x h) (if open on top)

Triangular prism



T.S.A = Area of all the 5 faces of the prism

1.7 Volume of cylinder and rectangular shapes

Cylinder

Volume = Base area x height

= Πr^2 x height

= $\Pi r^2 h$

Rectangular shape

Volume = Base area x height

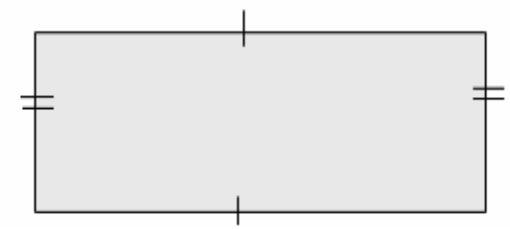
V = L x w x h

Note: Depending on the cross-section, the volume of any shape / solid is given by.

V = Area of cross-section x height/length

1.8 Perimeter

Rectangle

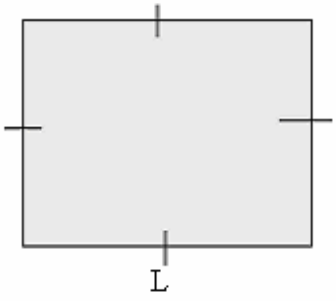


P = Length + Length + Width + Width

= L + L + W + W

= 2L + 2W or 2(L + W)

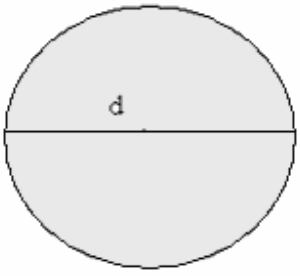
Square



P = L + L + L + L

= 4L

Circle

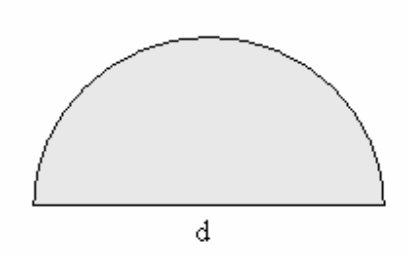


C = Π x diameter

= Πd or 2Πr

Note: Perimeter of a full circle is called *circumference*

Half a circle



Perimeter = circumference + diameter

$P = \frac{1}{2}\Pi d + d$

Note: For irregular shapes, JUST ADD THE DISTANCE ALL ROUND.

1.9 Expressing area of large shapes

Hectare – A shape that measures 100m by 100m

Therefore 1ha = $(100 \times 100)m^2$

1 ha = $10000m^2$

Are – a piece / shape that measures 10m by 10m

Therefore 1 are = 10×10

1 are = $100m^2$

Hence:

1 ha = $10000m^2$

1are = $100m^2$

1ha = 100ares