BALABHADRA SKILL DEVELOPMENT ACADEMY
MATHS FORMULA - 4
MENSURATION

1. **Rectangle**

   (a) Perimeter = 2 × (length + breadth)
   (b) Area = length × breadth

2. **Square**
   (a) Perimeter = 4 × length of its side
   (b) Area of a square = side × side = $(side)^2$

3. **Triangle**
   (a) Perimeter of an equilateral triangle = 3 × length of a side
   (b) Area of triangle = 1/2 x (Base x Height)
   (c) Pythagoras Theorem = $(Hypotenuse)^2 = (Perpendicular)^2 + (Base)^2$
   or $h^2 = p^2 + b^2$ (for right angled triangle)

4. **Circle**

   (a) Area of circle = πr^2
   (b) Circumference of circle = π d= $2\pi r$, where 'd' is the diameter of a circle, 'r' is radius and π =22/7 or 3.14
   (c) Diameter of the circle, d = 2 × r
   (d) Sector angle of the circle, $\theta = (180 \times l) / (\pi \times r)$; L- length of area
   (e) Area of the circular ring = $\pi \times (R^2 - r^2)$; where R – radius of the outer circle and r – radius of the inner circle
   (f) Area of the sector of angle $\theta = (\theta/360) \times \pi r^2 = (\theta/2) \times r^2$
   (g) Length of an arc of a sector of angle $\theta = (\theta/360) \times 2\pi r = \theta r$

5. **Parallelogram**

   (a) Perimeter of Parallelogram = 2 x (Length + Breadth)
   (b) Area = Base x height

6. **Cuboid**

   (a) **LSA =** 2h(l+b),
   (c) **TSA =**2(lb+bh+hl)
   (d) **Volume =** l × b × h (l = length, b = breadth, h = height)
   (LSA- Lateral/ curved surface area, TSA- Total Surface area)

7. **Cube**

(a) **LSA** = $4a^2$
(b) **TSA** = $6a^2$
(c) **Volume** = a^3

8. **Right Pyramid**

(a) **LSA=** ½(p x l) (p= perimeter of the base, L- slant height)
(b) **TSA=** LSA + Area of the base
(c) **Volume =** 1/3 x Area of the base x h

9. **Right Circular Cylinder**

(a) **LSA** = 2 (π x r x h)
(b) **TSA** = 2πr (r+h)
(c) **Volume=** π x r^2 x h (r= radius, h= height)

10. **Prism**

(a) **LSA=** p x h
(b) **TSA** = LSA + 2B
(c) **Volume=** B x h (p = perimeter of the base, B = area of base, h = height)

11. **Right Circular Cone**

(a) **LSA** = πrl
(b) **TSA** = π × r × (r + l)
(c) **Volume=** ⅓ × ($\pi r^2 h$) (r = radius, l = slant height, h = height)

12. **Hemisphere**

(a) **LSA=** 2 × π × r^2
(b) **TSA=** 3 × π × r^2
(c) **Volume=** 2/3 × (πr^3)

13. **Sphere**

(a) **LSA=** 4 × π × r^2
(b) **TSA** = 4 × π × r^2
(c) **Volume** = 4/3 × (πr^3)

14. **Cone**

(a) **Slant height=** $l=\sqrt{h^2+r^2}$

(b) **LSA=** πrl

(c) **TSA =** $\pi r\,(r+l)$

(d) **Volume=** $1/3\pi r^2 h$