

## Mensuration:

1. Area of a circle of radius ( $\gamma$ ) is  $\pi\gamma^2$ .
2. Perimeter (or circumference) of a circle of radius ( $\gamma$ ) is  $2\pi\gamma$ .
3. Volume of a sphere of radius ( $\gamma$ ) is  $\frac{4}{3}\pi\gamma^3$ .
4. Surface area of a sphere of radius ( $\gamma$ ) is  $4\pi\gamma^2$ .
5. Volume of right circular cone is  $\frac{1}{3}\pi\gamma^2h$  where ( $\gamma$ ) is the radius of the base and ( $h$ ) is the height of the cone.
6. Curved surface area of a cone is  $\pi\gamma l$  where ( $l$ ) is the slant height of the cone.
7. Total surface area of a cone is  $\pi\gamma l + \pi\gamma^2$ .
8. Volume of a right circular cylinder is  $\pi\gamma^2h$ .
9. Curved surface area of a right circular cylinder is  $2\pi\gamma h$ .
10. Total surface area of a right circular cylinder is  $2\pi\gamma h + 2\pi\gamma^2$ .
11. Area of a triangle =  $\frac{1}{2}$  (base) (height).
12. Area of a rectangle = (length) (breadth).
13. Perimeter of a rectangle = 2 (length) + 2 (breadth).
14. Area of a square = (Side)<sup>2</sup>.
15. Perimeter of a square = 4 (Side).
16. Volume of a cube =  $x^3$  where ( $x$ ) is the length of the side.
17. Surface area of a cube =  $6x^2$ .
18. Area of a trapezium =  $\frac{1}{2}$  (sum of parallel side)  $\times$  (distance between the parallel sides).
19. Area of an equilateral triangle =  $\frac{\sqrt{3}}{4}a^2 = \frac{1}{\sqrt{3}}p^2$ .  
where ( $a$ ) is the length of a side and ( $p$ ) is the length of an altitude.

**Derivatives:**

1.  $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$  provided the limit exists.

2.  $f'(a) = \lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h}$  provided the limit exists.

3.  $\frac{d}{dx}(k) = 0$  where  $(k)$  is a constant.

4.  $\frac{d}{dx}(u+v) = \frac{du}{dx} + \frac{dv}{dx}$ ,

5.  $\frac{d}{dx}(u-v) = \frac{du}{dx} - \frac{dv}{dx}$ .

6.  $\frac{d}{dx}(uv) = u \frac{dv}{dx} + v \frac{du}{dx}$ .

7.  $\frac{d}{dx} \left( \frac{u}{v} \right) = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$  ( $v \neq 0$ ).