anodiam
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MATHS **MENSURATION**

Mensuration

1. Area of polygons:
   i. Area of a rectangle = Length $\times$ Breadth
   ii. Area of a square = $(\text{Side})^2$
   iii. Area of a triangle = $\frac{1}{2} \times$ Base $\times$ Height
   iv. Area of a parallelogram = Base $\times$ Height
   v. Area of a trapezium = $\frac{1}{2} \times$ sum of parallel sides $\times$ distance between them
   vi. Area of a rhombus = $\frac{1}{2} \times$ product of its diagonals
   vii. Area of a general quadrilateral can be found by dividing it into two triangles, by drawing on of its diagonals, and then applying the formula of area of a triangle.

2. Area of a polygon (or field) can be calculated by suitably dividing it into triangle, rectangle, trapezium etc.

3. Surface area of a solid is the sum of the areas of all its faces.

4. Amount of region occupied by a solid is called its volume.

5. For a cuboid of length l, breadth b and height h, we have:
   i. Volume of cuboid = $(l \times b \times h)$ cubic units
   ii. Total surface area of cuboid = $(lb + bh + lh)$ sq units
   iii. Lateral surface area of cuboid = $\{2(l + b) \times h]$ sq units
   iv. Diagonal of cuboid = $\sqrt{l^2 + b^2 + h^2}$ units

6. For a cube of side a, we have:
   i. Volume of cube = (a^3) cubic units
   ii. Total surface area of cube = $(6a^2)$ sq units
   iii. Lateral surface area of cube = $(4a^2)$ sq units
   iv. Diagonal of cube = $\sqrt{3}a$ units

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7. For a cylinder of height h and base radius r, we have:
   i. Volume of cylinder = ($\pi r^2 h$) cubic units
   ii. Curved surface area of cylinder = ($2 \pi rh$) sq units
   iii. Total surface area of cylinder = $2 \pi r$ (h + r) sq units

8. Unit conversion:
   i. 1 cm^3 = 1 mL
   ii. 1 L = 1000 cm^3
   iii. 1 m^3 = 10^6 cm^3 = 1000 L