

**Surface Areas & Volumes**

1. **Cuboid**  $l$  is the length,  $b$  is the breadth,  $h$  is the height
  - (a) Curved Surface Area =  $2h(l + b)$
  - (b) Total Surface Area =  $2(lb + bh + hl)$
  - (c) Volume =  $lbh$
2. **Cube**  $a$  is measure the side of the cube
  - (a) Curved Surface Area =  $4a^2$
  - (b) Total Surface Area =  $6a^2$
  - (c) Volume =  $a^3$
3. **Right circular cylinder**  $r$  is radius of the base,  $h$  is the height
  - (a) Curved Surface Area =  $2\pi rh$
  - (b) Total Surface Area =  $2\pi r(h + r)$
  - (c) Volume =  $\pi r^2 h$
4. **Cone**  $r$  is radius of the base,  $h$  is the height,  $l$  is the slant height
  - (a) Curved Surface Area =  $\pi rl$
  - (b) Total Surface Area =  $2\pi r(l + r)$
  - (c) Volume =  $\frac{1}{3}\pi r^2 h$
  - (d) By Pythagoras theorem  $l^2 = h^2 + r^2$
5. **Sphere**  $r$  is the radius
  - (a) Surface Area =  $4\pi r^2$
  - (b) Volume =  $\frac{4}{3}\pi r^3$
6. **Hemisphere**  $r$  is the radius
  - (a) Surface Area =  $2\pi r^2$
  - (b) Volume =  $\frac{2}{3}\pi r^3$
7. **Circle**  $r$  is the radius,  $d$  is the diameter ( $2 \times r$ )
  - (a) Area =  $\pi r^2$
  - (b) Circumference =  $2\pi r$
  - (c) Length of an arc =  $\frac{\theta}{360} \times 2\pi r$
  - (d) Area of the sector of circle =  $\frac{\theta}{360} \times \pi r^2$
8. **Triangle**  $a, b, c$  are the length of the sides and  $s$  is semi perimeter
  - (a) Perimeter =  $a + b + c$
  - (b) Semi perimeter =  $\frac{a+b+c}{2}$
  - (c) Area =  $\frac{1}{2} \times \text{base} \times \text{height}$
  - (d) Area =  $\sqrt{s(s-a)(s-b)(s-c)}$