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CBSE BOARD BOOSTER

Class 10 Maths

Complete Formula Sheet

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Algebra

- Quadratic roots: $x = (-b \pm \sqrt{(b^2-4ac)})/2a$.
- Discriminant $D = b^2 - 4ac$ decides nature of roots.
- Sum of roots = $-b/a$; Product = c/a.
- AP nth term: $a_n = a + (n-1)d$.
- AP sum: $S_n = n/2\,[2a + (n-1)d] = n/2\,(a + l)$.

Coordinate Geometry

- Distance: $\sqrt{((x_2-x_1)^2 + (y_2-y_1)^2)}$.
- Section formula: $((mx_2+nx_1)/(m+n), (my_2+ny_1)/(m+n))$.
- Midpoint: $((x_1+x_2)/2, (y_1+y_2)/2)$.

Trigonometry

- $\sin^2\theta + \cos^2\theta = 1$.
- $1 + \tan^2\theta = \sec^2\theta$; $1 + \cot^2\theta = \text{cosec}^2\theta$.
- Values at 0, 30, 45, 60, 90 degrees must be memorised.
- Height & distance: use $\tan\theta$ = opposite/adjacent.

Mensuration & Statistics

- Sphere: volume $4/3\,\pi r^3$, surface $4\pi r^2$.
- Cone: volume $1/3\,\pi r^2 h$, curved surface $\pi r l$.
- Cylinder: volume $\pi r^2 h$, curved surface $2\pi r h$.
- Mean = $\Sigma fx/\Sigma f$. Mode = $l + ((f_1-f_0)/(2f_1-f_0-f_2)) \times h$.
- Probability = favourable outcomes / total outcomes.