Differential Equations Class 12 Formula Sheet

CBSE Class 12 Maths · NCERT · for boards, NEET and JEE revision

ChapterNotes

Order and Degree

Order: Highest order derivative present
Degree: Power of the highest order derivative (after removing radicals/fractions)
Degree is defined only when DE is polynomial in derivatives

Methods of Solving

Variable Separable: dy/dx = f(x)g(y) → ∫dy/g(y) = ∫f(x)dx
Homogeneous Equations: dy/dx = F(y/x) - substitute y = vx, dy/dx = v + x(dv/dx)
Separate variables in v and x, then integrate
Linear Differential Equation: Form: dy/dx + Py = Q (where P, Q are functions of x)
Integrating Factor (IF): e^(∫P dx)
Solution: y × IF = ∫(Q × IF) dx + C
Also: dx/dy + Px = Q (P, Q functions of y): IF = e^(∫P dy)

Quick revision

- Order = highest derivative; Degree = power of highest order derivative
- Variable separable: f(x)dx = g(y)dy
- Homogeneous: put y = vx; converts to separable
- Linear: dy/dx + Py = Q; IF = e^(∫P dx); Solution: y·IF = ∫Q·IF dx + C
- Number of arbitrary constants = order of DE

Full chapter notes with solved examples and practice questions: https://chapternotes.in/cbse/class-12-maths/differential-equations-class-12-notes/