Maths Class 12 Formula

Calculus Formulas

- $\int f(x)\,dx = F(x) + C$
- **Power Rule:** $\int x^n\,dx = (x^{n+1}) / (n+1) + C$. (Where $n \neq -1$)
- **Exponential Rules:** $\int e^x\,dx = e^x + C$
- $\int a^x\,dx = a^x / \ln(a) + C$
- $\int \ln(x)\,dx = x \ln(x) - x + C$
- **Constant Multiplication Rule:** $\int a\,dx = ax + C$, where a is the constant.
- **Reciprocal Rule:** $\int (1/x)\,dx = \ln(x) + C$
- **Sum Rules:** $\int [f(x) + g(x)]\,dx = \int f(x)\,dx + \int g(x)\,dx$
- **Difference Rules:** $\int [f(x) - g(x)]\,dx = \int f(x)\,dx - \int g(x)\,dx$
- $\int k\,f(x)\,dx = k \int f(x)\,dx$, , where k is any real number.
- **Integration by parts:** $\int f(x)\,g(x)\,dx = f(x) \int g(x)\,dx - \int [d/dx\,f(x) \times \int g(x)\,dx]dx$
- $\int \cos x\,dx = \sin x + C$
- $\int \sin x\,dx = -\cos x + C$
- $\int \sec^2 x\,dx = \tan x + C$
- $\int \text{cosec}^2 x\,dx = -\cot x + C$
- $\int \sec x \tan x\,dx = \sec x + C$
- $\int \text{cosec}\,x \cot x\,dx = -\text{cosec}\,x + C$

Trigonometry Formulas

- $\sin^{-1}(-x) = -\sin^{-1}x$
- $\tan^{-1}x + \cot^{-1}x = \pi / 2$
- $\sin^{-1}x + \cos^{-1} x = \pi / 2$
- $\cos^{-1}(-x) = \pi - \cos^{-1}x$
- $\cot^{-1}(-x) = \pi - \cot^{-1}x$

3-D Geometry Formulas

- **Cartesian equation of a plane:** $lx + my + nz = d$

- **Distance between two points P(x1, y1, z1) and Q(x2, y2, z2):** $PQ = \sqrt{((x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2)}$