

## Indefinite Integration Doubts

$\mathcal{D}1$ . Evaluate

$$\int \{[x]\} \, dx$$

$\mathcal{D}2$ . Evaluate

$$\int \frac{x^2 + 1}{2x^4 - x^2 + 1} \, dx$$

$\mathcal{D}3$ . Evaluate

$$\int \frac{-x^3}{\sqrt{15x^2 + 7x + 1}} \, dx$$

$\mathcal{D}4$ . Evaluate

$$\int (x - 1)^{101} \cdot x^{26} \, dx$$

$\mathcal{D}5$ . Evaluate

$$\int x^{-2/3} (1 + x^{2/3})^{-1} \, dx$$

$\mathcal{D}6$ . Evaluate

$$\int \ln(\sin x) \, dx$$

$\mathcal{D}7$ . Evaluate

$$\int \frac{1}{x + \sqrt{x^2 - x + 1}} \, dx$$

$\mathcal{D}8$ . Evaluate

$$\int \frac{(\tan x)^{-7/6} - (\tan x)^{-17/6}}{\sqrt[3]{\tan x} \sqrt{\sec^2 x + \tan x} + \sqrt{\tan x} \sqrt[3]{\sec^2 x + \tan x}} \, dx$$

$\mathcal{D}9$ . If  $y(x - y)^2 = x$   
then Evaluate,

$$\int \frac{1}{x - 3y} \, dx$$

$\mathcal{D}10$ . Evaluate

$$\int \frac{\sin x \left( \cos^2 x - \cos^2 \frac{\pi}{5} \right) \left( \cos^2 x - \cos^2 \frac{2\pi}{5} \right)}{\sin 5x} dx$$

$\mathcal{D}11$ . Evaluate

$$\int \frac{\sin x - x \cos x}{x^2} dx$$

$\mathcal{D}12$ . Evaluate

$$\int \left( \prod_{r=1}^n x + r \right) \left( \sum_{k=1}^n \frac{1}{x + k} \right) dx$$

$\mathcal{D}13$ . Evaluate

$$\lim_{n \rightarrow \infty} \sum_{r=0}^n \frac{\binom{n}{r}}{n^r(r+3)}$$