

Board – CBSE

Class – 12

Topic – Indefinite & Definite Integrals

(i) Integration by substitution**LEVEL I**

1. $\int \frac{\sec^2(\log x)}{x} dx$

2. $\int \frac{e^{m \tan^{-1} x}}{1+x^2} dx$

3. $\int \frac{e^{\sin^{-1} x}}{\sqrt{1-x^2}} dx$

LEVEL II

4. $\int \frac{1}{\sqrt{x+x}} dx$

5. $\int \frac{1}{x\sqrt{x^6-1}} dx$

6. $\int \frac{1}{e^x-1} dx$

LEVEL III

7. $\int \frac{\sqrt{\tan x}}{\sin x \cdot \cos x} dx$

8. $\int \frac{\tan x}{\sec x + \cos x} dx$

9. $\int \frac{1}{\sin x \cdot \cos^3 x} dx$

(ii) Application of trigonometric function in integrals**LEVEL I**

10. $\int \sin^3 x dx$

11. $\int \cos^2 3x dx$

12. $\int \cos x \cdot \cos 2x \cdot \cos 3x dx$

LEVEL II

13. $\int \sec^4 x \cdot \tan x dx$

14. $\int \frac{\sin 4x}{\sin x} dx$

LEVEL III

15. $\int \cos^5 x \, dx$

16. $\int \sin^2 x \cdot \cos^3 x \, dx$

(iii) Integration using standard results**LEVEL I**

17. $\int \frac{dx}{\sqrt{4x^2-9}}$

18. $\int \frac{1}{x^2+2x+10} \, dx$

19. $\int \frac{dx}{9x^2+12x+13}$

LEVEL II

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

21. $\int \frac{\cos x}{\sin^2 x + 4 \sin x + 5} \, dx$

22. $\int \frac{dx}{\sqrt{7-6x-x^2}}$

LEVEL II

23. $\int \frac{2x}{\sqrt{1-x^2-x^4}} \, dx$

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

25. $\int \frac{x+2}{\sqrt{x^2+5x+6}} \, dx$