

CLASS XII – MATHEMATICS – CHAPTER 07

INTEGRALS

Name:

Date:

Q01. $\int \frac{x^3 - 1}{x^2} dx$

Q03. $\int \frac{x^3 - x^3 + x - 1}{x - 1} dx$

Q05. $\int_{-1}^2 |x^3 - 1| dx$

Q07. $\int \frac{\sin^8 x - \cos^8 x}{1 - 2\sin^2 x \cdot \cos^2 x} dx$

Q09. $\int (\sqrt{\cot x} + \sqrt{\tan x}) dx$

Q11. $\int f'(ax + b)[f(ax + b)]^x dx$

Q13. $\int_{-1}^1 \sin^5 x \cdot \cos^4 x dx$

Q15. $\int_0^\pi \frac{x \sin x}{1 + \cos^2 x} dx$

Q17. $\int \frac{5x}{(x+1)(x^2+9)} dx$

Q19. $\int \left[\log(\log x) + \frac{1}{(\log x)^2} \right] dx$

Q21. $\int \frac{\cos 2x + 2\sin^2 x}{\cos^2 x} dx$

Q23. $\int \frac{e^{5 \log x} - e^{4 \log x}}{e^{3 \log x} - e^{2 \log x}} dx$

Q25. $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{dx}{1 + \sqrt{\tan x}}$

Q02. $\int \frac{\sec^2 x}{\operatorname{cosec}^2 x} dx$

Q04. $\int \frac{\tan^4 \sqrt{x} \sec^2 \sqrt{x}}{\sqrt{x}} dx$

Q06. $\int_0^\pi \frac{x \tan x}{\sec x + \tan x} dx$

Q08. $\int \frac{dx}{\sqrt{\sin^3 x \sin(x+a)}}$

Q10. $\int \cos^3 x \cdot e^{\log \sin x} dx$

Q12. $\int_0^1 x e^x dx$

Q14. $\int \frac{dx}{x + x \log x}$

Q16. $\int_0^{\frac{\pi}{4}} \frac{\sin x + \cos x}{9 + 16 \sin 2x} dx$

Q18. $\int \frac{\sin^{-1} \sqrt{x} - \cos^{-1} \sqrt{x}}{\sin^{-1} \sqrt{x} + \cos^{-1} \sqrt{x}} dx$

Q20. $\int \frac{10x^9 + 10^x \log_e 10}{x^{10} + 10^x} dx$

Q22. $\int_{-\frac{\pi}{4}}^{\frac{\pi}{4}} \sin^2 x dx$

Q24. $\int \frac{e^{2x} - 1}{e^{2x} + 1} dx$

Q26. $\int_0^{\frac{\pi}{4}} \frac{\sin x \cdot \cos x}{\cos^4 x + \sin^4 x} dx$

D CUBE AURA

$$\text{Q27. } \int \frac{dx}{\cos(x+a) \cdot \cos(x+b)} dx$$

$$\text{Q29. } \int_0^{\pi} \log \sin x \, dx$$

$$\text{Q31. } \int \frac{(x+1)(x+\log x)^2}{x} dx$$

$$\text{Q33. } \int \frac{dx}{x^2 - 16}$$

$$\text{Q35. } \int_0^{\pi} \log(1 + \tan x) \, dx$$

$$\text{Q37. } \int_1^4 [|x-1| + |x-2| + |x-3|] dx$$

$$\text{Q39. } \int_0^1 \tan^{-1} \frac{2x-1}{1+x-x^2} dx$$

$$\text{Q41. } \int_{-\frac{\pi}{2}}^{\pi} (x^3 + x \cos x + \tan^5 x + 1) dx$$

$$\text{Q43. } \int \frac{2+\sin 2x}{1+\cos x} e^x dx$$

$$\text{Q45. } \int_{-1}^{\frac{3}{2}} x \sin(\pi x) dx$$

$$\text{Q47. Prove } \int \sec x \, dx = \log |\sec x + \tan x| + c.$$

$$\text{Q48. Find the sum of limit } \int_0^4 (x + e^{2x}) dx.$$

$$\text{Q49. If } f(a+b-x) = f(x) \text{ then } \int_a^b f(x) dx = ?$$

$$\text{Q50. Show that } \int_0^a f(x) \cdot g(x) \, dx = 2 \int_0^a f(x) \, dx. \text{ If } f(x) = f(a-x) \text{ and } g(x) + g(a-x) = 4.$$

$$\text{Q28. } \int_0^{\frac{\pi}{2}} \frac{\cos^2 x}{\cos^2 x + 4 \sin^2 x} dx$$

$$\text{Q30. } \int \frac{\sqrt{\tan x}}{\sin x \cdot \cos x} dx$$

$$\text{Q32. } \int \frac{\cos 2x - \cos 2\alpha}{\cos x - \cos \alpha} dx$$

$$\text{Q34. } \int e^x \left(\tan^{-1} x + \frac{1}{1+x^2} \right) dx$$

$$\text{Q36. } \int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\sin x + \cos x}{\sqrt{\sin 2x}} dx$$

$$\text{Q38. } \int_0^{\pi} \frac{x \, dx}{a^2 \cos^2 x + b^2 \sin^2 x}$$

$$\text{Q40. } \int_0^{\frac{\pi}{2}} \left(\frac{4+3 \sin x}{4+3 \cos x} \right) dx$$

$$\text{Q42. } \int_0^{\frac{\pi}{2}} (2 \log \sin x - \log \sin 2x) dx$$

$$\text{Q44. } \int \tan^{-1} \sqrt{\frac{1-x}{1+x}} dx$$

$$\text{Q46. } \int \frac{dx}{3x^2 + 13x - 10}$$