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BHASKAR CLASSES PVT LTD

Definite Integral Test - II

1. If $\int_{-2}^{3} x^2\,dx = k\ \int_{0}^{2} x^2\ dx + \int_{2}^{3} x^2\ dx$, then the value of k is

   a. 2

   b. 1

   c. 0

   d. $\frac{1}{2}$

2. The value of $\int_{1}^{e} \log x\ dx$ is

   a. 0

   b. 1

   c. e

   d. $e \log e$

3. If $\int_{0}^{a} 3x^2\ dx = 8$, then the value of $'a'$ is

   a. 2

   b. 4

   c. 8

   d. 10

4. For any integer n, the value of $\int_{0}^{\pi} e^{\sin^2 x} \cos^3(2n+1)\,x\,dx$ is

   a. -1

   b. 0

   c. 1

   d. 2

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5. Evaluate $\int_0^{2\pi} |\sin x|\ dx$.
6. Evaluate $\int_0^{-1} x\, e^{x^2}\ dx$.
7. Evaluate $\int_0^{\frac{\pi}{2}} e^x (\sin x - \cos x) dx$.
8. Write the value of $\int_0^1 \frac{e^x}{1+e^{2x}}\ dx$.
9. Evaluate $\int_0^1 \frac{2x}{1+x^2}\ dx$.
10. Evaluate $\int_{\frac{1}{3}}^1 \frac{(x-x^3)^{\frac{1}{3}}}{x^4}\ dx$.
11. Evaluate $\int_1^4 \frac{1}{\sqrt{2x+1}-\sqrt{2x-1}}\ dx$.
12. Evaluate $\int_0^{2\pi} \frac{1}{1+e^{\sin x}}\ dx$.
13. Evaluate $\int_{-2}^1 \sqrt{5-4x-x^2}\ dx$.
14. Evaluate $\int_0^{\pi} \frac{x \sin x}{1+\cos^2 x}\ dx$.
15. Evaluate $\int_{-\frac{\pi}{4}}^{\frac{\pi}{4}} \frac{x+\frac{\pi}{4}}{2-\cos 2x}\ dx$.
16. Evaluate $\int_0^{\pi} \frac{x \tan x}{\sec x+\tan x}\ dx$.
17. Evaluate $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{\cos x}{1+e^x}\ dx$.
18. Evaluate $\int_0^{\frac{\pi}{2}} \frac{x+\sin x}{1+\cos x}\ dx$.
19. Evaluate $\int_0^{\frac{\pi}{4}} \frac{\sin x+\cos x}{16+9\sin 2x}\ dx$.
20. Evaluate $\int_0^{\frac{\pi}{4}} \frac{\sin x+\cos x}{9+16\sin 2x}\ dx$.