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BHASKAR CLASSES PVT LTD

Definite Integral Test - I

1. The value of $\int_{-1}^{1} x\,|x|\,dx$ is

   a. $\frac{1}{6}$

   b. $\frac{1}{3}$

   c. $-\frac{1}{6}$

   d. 0

2. The value of $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} \cot\theta\ cosec^2\theta\,d\theta$ is

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

   b. $-\frac{1}{2}$

   c. 0

   d. $-\frac{\pi}{8}$

3. $\int_0^4 (e^{2x}+x)\,dx$ is equal to

   a. $\frac{15+e^8}{2}$

   b. $\frac{16-e^8}{2}$

   c. $\frac{e^8-15}{2}$

   d. $\frac{-e^8-15}{2}$

4. $\int_{-1}^{1} \frac{|x-2|}{x-2}\,dx, x \neq 2$ is equal to

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a. 1

b. -1

c. 2

d. -2

5. $\int_0^{\frac{\pi}{6}} \sec^2\left(x-\frac{\pi}{6}\right)\,dx$ is equal to

a. $\frac{1}{\sqrt{3}}$

b. $-\frac{1}{\sqrt{3}}$

c. $\sqrt{3}$

d. $-\sqrt{3}$

6. Evaluate $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} x^2 \sin x\ \,dx$.

7. If $[x]$ denotes the greatest integer function, then find $\int_0^{\frac{3}{2}} [x^2]\,dx$.

8. Evaluate $\int_2^3 3^x\,dx$.

9. Evaluate $\int_2^4 \frac{x}{x^2+1}\,dx$.

10. Evaluate $\int_0^2 \sqrt{4-x^2}\,dx$.

11. Evaluate $\int_{-1}^1 \log_e\left(\frac{2-x}{2+x}\right)\,dx$.

12. Evaluate $\int_{-1}^1 \left[\frac{1}{x}-\frac{1}{2x^2}\right] e^{2x}\,dx$.

13. Evaluate $\int_{-1}^2 \frac{|x|}{x}\,dx$.

14. Evaluate $\int_0^{\pi} \frac{e^{\cos x}}{e^{\cos x}+e^{-\cos x}}\,dx$.

15. Evaluate $\int_0^{\frac{\pi}{2}} e^x \sin x\ \,dx$.

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16. Evaluate $\int_1^3 \{|x-1|+|x-2|\}\,dx$.

17. Evaluate $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} e^{2x}\left(\frac{1-\sin 2x}{1-\cos 2x}\right)\,dx$.

18. Evaluate $\int_1^3 \frac{\sqrt{4-x}}{\sqrt{x}+\sqrt{4-x}}\,dx$.

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

20. Evaluate $\int_{-1}^{2} |x^3-3x^2+2x|\,dx$.