MATHS

BOOKS - JEE MAINS PREVIOUS YEAR

INTEGRALS

Others

1. If $g(x) = \int 0x \cos 4t \mathrm{dt}$, then $g(x+\pi)$ equals: (1) $\left(\frac{g(x)}{g(\pi)}\right.$ (2) $g(x)+g(\pi)$ (3) $g(x)-g(\pi)$ (4) $g(x)g(\pi)$

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2. If the integral $\int \frac{5\tan x}{\tan x - 2} dx = x + a\ln|\sin x - 2\cos x| + k$ then a is equal to (1) 1 (2) 2 (3) 1 (4) 2

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3. If $\int f(x)dx = \psi(x)$, then $\int x^5 f(x^3)dx$ is equal to

A. $\frac{1}{3}x^3\psi(x^3) - 3\int x^3\psi(x^3)dx + C$

B. $\frac{1}{3}x^3\psi(x^3) - \int x^2\psi(x^3)dx + C$

C. $\frac{1}{3}x^3\psi(x^3) - \int x^3\psi(x^3)dx + C$

D. $\frac{1}{3}\left[x^3\psi(x^3) - \int x^2\psi(x^3)dx\right] + C$

Answer: B

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4. The integral $\int\left(1 + x - \frac{1}{x}\right)e^{x+\frac{1}{x}}dx$ is equal to (1) $(x-1)e^{x+\frac{1}{x}} + C$ (2) $xe^{x+\frac{1}{x}} + C$ (3) $(x+1)e^{x+\frac{1}{x}} + C$ (4) $-xe^{x+\frac{1}{x}} + C$

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5. The integral $\int_0^{\pi} \sqrt{1+4\sin^2\left(\frac{x}{2}\right)-4\sin\left(\frac{x}{2}\right)}dx$ equal

(1) $\pi-4$ (2) $\frac{2\pi}{3}-4-4\sqrt{3}$ (3) $4\sqrt{3}-4$ (4) $4\sqrt{3}-4-\frac{\pi}{3}$

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6. Let $I_n=\int \tan^n x dx, (n>1)$ If $I_4+I_6=a\tan^5 x+bx^5+C,$ Where C is a constant of integration, then the ordered pair

(a, b) is equal to : (1) $\left(\frac{5}{1}, -1\right)$ (2) $\left(-\frac{1}{5, 0}\right)$ (3) $\left(-\frac{1}{5}, 1\right)$ (4) $\left(\frac{1}{5}, 0\right)$

A. $\left(-\frac{1}{5}, 0\right)$

B. $\left(-\frac{1}{5}, 1\right)$

C. $\left(\frac{1}{5}, 0\right)$

D. $\left(\frac{1}{5}, -1\right)$

Answer: null

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7. The Integral $\int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} \frac{dx}{1+\cos x}$ is equal to:

A. -1

B. -2

C. 2

D. 4

Answer: null

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