

1. The value of the integral $\int \frac{e^{5\log x} - e^{4\log x}}{e^{3\log x} - e^{2\log x}} dx$ is equal to (Where C is constant of integration)

- $(3) \frac{x^2}{2} + C$

- (2) $\frac{x^3}{3} + C$
- (4) None of these mathons mathons mathons mathons mathons

- $\int rac{5\left(x^6+1
 ight)}{x^2+1} dx$ is equal to
 - (1) $5(x^7+x)\tan^{-1}x+C$ (3) $3x^4 - 5x^2 + 15x + C$

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- 3. $\int \sin^3 x dx =$
- (1) $-\frac{3}{4}\cos x + \frac{\cos 3x}{12} + C$ must mathon (2) $-\frac{2}{3}\cos x + \frac{\cos 3x}{12} + C$ mathon (3) $-\frac{3}{4}\cos x + \frac{\cos 3x}{10} C$ (4) $\frac{3}{4}\cos x \frac{\cos 3x}{10} C$

(2) $\frac{1}{1+\cot^3 x} + C$. mathongo /// mathongo /// mathongo ///

(4) $\frac{1}{3(1+\tan^3 x)} + C$ (where C is a constant of integration)

- 4. $\int \frac{1+x+\sqrt{x+x^2}}{\sqrt{x}+\sqrt{1+x}} dx$ is equal to mathongo /// mathongo // math (1) $\frac{1}{2}\sqrt{1+x} + C$
- 5. $\int \sqrt[4]{\frac{1-x}{1+x}} dx = \frac{1}{1+x} dx = \frac{1}{1+x} dx$ mathongo $\frac{1}{1+x} dx = \frac{1}{1+x} dx$
 - (2) $\sin^{-1} x + \frac{1}{2} \sqrt{1 x^2} + c$

(4) $2(1+x)^{3/2}+C$

(2) $\frac{3}{3+n}(\tan x)^{\frac{n}{3}+1} + c$

(4) None of these

(4) $\sin^{-1} x + \sqrt{1 - x^2} + c$ mathongo mathongo mathongo

(1) $\sin^{-1} x - \frac{1}{2} \sqrt{1 - x^2} + c$

(3) $\sqrt{1+x} + C$

- $\frac{c}{\sin^2 x \cos^2 x}$ mathongo mathongo mathongo (3) $\sin^{-1} x - \sqrt{1-x^2} + c$
- 6. The integral $\int \frac{\sin^5 x + \cos^3 x \sin^2 x + \sin^3 x \cos^2 x + \cos^5 x}{\left(\sin^5 x + \cos^3 x \sin^2 x + \sin^3 x \cos^2 x + \cos^5 x\right)}$ $\frac{1}{2}dx$ is equal to:
 - $(1) \frac{-1}{3(1+\tan^3 x)} + C$ (3) $\frac{-1}{1+\cot^3 x} + C$
- 7. $\int \sqrt[3]{\frac{\sin^n x}{\cos^{n+6}x}} dx$, $n \in N$ is equal to _____ mathongo
 - (1) $\frac{3}{n}(\tan x)^{\frac{n}{3}+1} + c$
- (3) $\frac{3}{n}(\cos x)^{n+1} + c$ 8. $\int \frac{\cos x - \sin x}{7 - 9 \sin 2x} dx = \frac{1}{2}$ mathongo $\frac{1}{2}$ mathongo $\frac{1}{2}$ mathongo
 - $(1) \frac{1}{24} \log \left| \frac{4+3(\sin x + \cos x)}{4-3(\sin x + \cos x)} \right| + c$
 - (2) $\frac{1}{24} \log \left| \frac{4-3(\sin x + \cos x)}{4+3(\sin x + \cos x)} \right| + c$ (3) $\frac{1}{24}\log\left|\frac{4-(\sin x-\cos x)}{4+(\sin x-\cos x)}\right|+c$ go // mathongo // mathongo $(4) \quad \frac{1}{24} \log \left| \frac{4 + (\sin x - \cos x)}{4 - (\sin x - \cos x)} \right| + c \quad \text{ongo} \quad \text{w mathongo}$
- 9. If $\int \frac{dx}{(x-1)^{3/4}(x+2)^{5/4}} = k\left(\frac{x-1}{x+2}\right)^{1/4} + c$, then the number of divisors of 30k is
- 10. If $\int \frac{\sin x}{\sin(x-\alpha)} dx = Ax + B \log \sin(x-\alpha) + C$, then find value of (A, B).
 - (1) $(-\sin\alpha,\cos\alpha)$ (2) $(\cos \alpha, \sin \alpha)$
- (3) $(\sin \alpha, \cos \alpha)$ mathongo mathongo mathongo (4) $(-\cos\alpha, \sin\alpha)$ mathongo /// mathongo /// mathongo