

Integral - 2
12th Standard CBSE

Maths
Integrals

Total Mark : 45

1 Mark Questions

- 1) $\int \frac{dx}{x^2+2x+2}$ equals 1
(a) $x \tan^{-1}(x+1) + C$ (b) $\tan^{-1}(x+1) + C$ (c) $(x+1) \tan^{-1}x + C$ (d) $\tan^{-1}x + C$
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- 2) $\int \frac{10x^9+10^x \log_e 10 dx}{x^{10}+10^x}$ equals 1
(a) $10^x - x^{10} + C$ (b) $10^x + x^{10} + C$ (c) $(10^x - x^{10})^{-1} + C$ (d) $\log(10^x + x^{10}) + C$
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- 3) If a is such that $\int_0^a x dx \leq a + 4$, then 1
(a) $0 \leq a \leq 4$ (b) $-2 \leq a \leq 0$ (c) $a \leq -2$ or $a \leq 4$ (d) $-2 \leq a \leq 4$
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- 4) The anti derivative of $\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)$ equals 1
(a) $\frac{1}{3}x^{\frac{1}{3}} + 2x^{\frac{1}{2}} + C$ (b) $\frac{2}{3}x^{\frac{2}{3}} + \frac{1}{2}x^2 + C$ (c) $\frac{2}{3}x^{\frac{3}{2}} + 2x^{\frac{1}{2}} + C$ (d) $\frac{3}{2}x^{\frac{3}{2}} + \frac{1}{2}x^{\frac{1}{2}} + C$
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- 5) Let $I_1 = \int_1^2 \frac{dx}{\sqrt{1+x^2}}$ and $I_2 = \int_1^2 \frac{dx}{x}$, then 1
(a) $I_1 > I_2$ (b) $I_2 > I_1$ (c) $I_1 = I_2$ (d) $I_1 > 2I_2$
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- 6) $\int \frac{e^x(1+x)}{\cos^2(e^x x)} dx$ equals 1
(a) $-\cot(e^x) + C$ (b) $\tan(xe^x) + C$ (c) $\tan(e^x) + C$ (d) $\cot(e^x) + C$
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- 7) If $\frac{d}{dx} f(x) = 4x^3 - \frac{3}{x^4}$ such that $f(2) = 0$. Then $f(x)$ is 1
(a) $x^4 + \frac{1}{x^3} - \frac{129}{8}$ (b) $x^3 + \frac{1}{x^4} + \frac{129}{8}$ (c) $x^4 + \frac{1}{x^3} + \frac{129}{8}$ (d) $x^3 + \frac{1}{x^4} - \frac{129}{8}$
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- 8) $\int \frac{dx}{\sin^2 x \cos^2 x}$ equals 1
(a) $\tan x + \cot x + C$ (b) $\tan x + \cot x + C$ (c) $\tan x \cot x + C$ (d) $\tan x - \cot 2x + C$
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- 9) $\int_0^{\frac{\pi}{2}} \frac{dx}{1+\sin x}$ equals to 1
(a) 0 (b) $\frac{1}{2}$ (c) 0 (d) $\frac{3}{2}$
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- 10) $\int \frac{\sin^2 x - \cos^2 x}{\sin^2 x \cos^2 x} dx$ is equal to 1
(a) $\tan x + \cot x + C$ (b) $\tan x + \operatorname{cosec} x + C$ (c) $-\tan x + \cot x + C$ (d) $\tan x + \sec x + C$

2 Mark Questions

- 11) $\int \sin^{-1}(\cos x) dx$ 2
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- 12) $\int \sin^2 x dx$ 2
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13) $\int \tan^{-1} \sqrt{\frac{1-\cos 2x}{1+\cos 2x}} dx$ 2

3 Mark Questions

14) If $x = \int_0^x \tan \sin t dt$, then write the value of $f'(x)$ 3

15) Evaluate: $\int_{-\pi/2}^{-\pi/2} \sin^5 x dx$. 3

16) Evaluate: $\int_0^1 \frac{e^x}{1+e^{2x}} dx$. 3

4 Mark Questions

17) Evaluate the integral: $\int \frac{(x-4)e^x}{(x-2)^3} dx$ 4

18) Evaluate the integral $\int \frac{1}{a^2 \sin^2 x + b^2 \cos^2 x} dx$ 4

19) Evaluate the integral: $\int \sqrt{\tan x} dx$. 4

20) Evaluate the integral: $\int \frac{dx}{\sqrt{5-4x-2x^2}}$ 4

21) Evaluate the integral: $\int \frac{x^2+4}{x^4+16} dx$. 4
