Saitechinfo NEET JEE Academy

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INTEGRALS SIMPLE AND SUBSTITUTION METHODS

Class 12 - Mathematics

Time Allowed: 1 hour and 30 minutes **Maximum Marks: 45**

1. Find: $\int \frac{dx}{9+4x^2}$ **[1]**
2. Find: $\int \frac{x^3+1}{x^3-x}dx$ **[1]**
3. Find $\int xe^{(1+x^2)}\,dx$ **[1]**
4. Find: $\int e^{2\log x}\,dx$ **[1]**
5. Find: $\int \frac{\sin x}{\sin^3 x+\cos^3 x}dx$ **[3]**
6. Evaluate: $\int \frac{2x}{(2x+1)^2}dx.$ **[3]**
7. Evaluate: $\int \frac{x}{\sqrt{x+a}+\sqrt{x+b}}dx$ **[3]**
8. If f'(x) = x + b, f(1) = 5, f(2) = 13, find f(x). **[3]**
9. If f'(x) = a sin x + b cos x and f'(0) = 4, f(0) = 3, $f\left(\frac{\pi}{2}\right)$ = 5, find f(x). **[5]**
10. Integrate the function: $\frac{e^{\tan^{-1}x}}{1+x^2}$ **[1]**
11. Evaluate: $\int cosec\,x dx$ **[1]**
12. Evaluate the integral: $\int \sin x \cos x dx$ **[1]**
13. Write a value of $\int \tan^3 x \sec^2 x dx$ **[1]**
14. Evaluate: $\int \frac{1+\sin x}{\sqrt{x-\cos x}}dx$ **[1]**
15. Evaluate: $\int \frac{x}{\sqrt{x+z}\sqrt{x+z}}dx$ **[3]**
16. Evaluate: $\int \frac{1}{\sin x(3+2\cos x)}dx.$ **[3]**
17. Evaluate: $\int \frac{1}{p+q\tan x}dx$ **[3]**
18. Evaluate: $\int \frac{\sqrt{x^2+1}\left(\log|x^2+1|-2\log|x|\right)}{x^4}dx.$ **[5]**
19. Evaluate: $\int \frac{x+\sqrt{x+1}}{x+2}dx$ **[5]**