Maple Online Classes

12th Maths

CBSE Test: Integrals

Time 2:30 Hrs.
Marks 60

Instructions

- Attempt all Questions.

1. Find the following integrals: **(2)**

$\int(\sin x + \cos x)dx$

2. Integrate $\frac{x^2}{1-x^6}$ **(2)**

3. Find the integral of $\frac{\cos x}{1+\cos x}$ **(2)**

4. Evaluate the following integrals: **(2)**

$\int_1^2 \frac{xdx}{(x+1)(x+2)}$

5. Write an anti derivative for each of the following functions using the method of inspection: **(2)**

$\cos^2 x$

6. By using the properties of definite integrals, evaluate the integral: $\int_0^{\frac{\pi}{2}} \frac{\sqrt{\sin x}}{\sqrt{\sin x}+\sqrt{\cos x}}dx$ **(2)**

7. Integrate the following functions w.r.t. x: **(2)**

$2x\sin\left(x^2+1\right)$

8. $\int\sqrt{\frac{a+x}{a-x}}$ **(2)**

9. $\int_0^{\frac{\pi}{2}} \frac{dx}{\left(a^2\cos^2 x + b^2\sin^2 x\right)^2}$ **(2)**

(Hint: Divide Numerator and Denominator by $\cos^4 x$)

10. $\int_{-a}^{a} f(x)dx = 0$ if f is an _____ function. **(2)**

11. If $\int_0^a \frac{1}{1+4x^2}dx = \frac{\pi}{8}$, then a = _____. **(2)**

12. Integrate $\frac{\sin x}{(1+\cos x)^2}$ **(2)**

13. Integrate $\frac{5x-2}{1+2x+3x^2}$ **(2)**

14. Find an anti derivative (or integral) of the following functions by the method of inspection. e^{2x} **(2)**

15. By using the properties of definite integrals, evaluate $\int_0^2 \frac{6x+3}{x^2+4}dx$ **(2)**

16. $\int\frac{\sin^6 x}{\cos^8 x}dx$= _____. **(2)**

17. Find an anti derivative (or integral) of the following functions by the method of inspection. sin 2x **(2)**

18. Integrate $\frac{x^2}{(2+3x^3)^3}$ **(2)**

19. Find $x^2 \tan^{-1} x dx$ **(2)**

20. Find $\int_0^{\frac{\pi}{4}} \sqrt{1+\sin 2x} dx$ **(2)**

21. Evaluate the integrals using substitution. $\int_{-1}^{1} \frac{dx}{x^2+2x+5}$ **(2)**

22. Find $\int_2^8 \frac{\sqrt{10-x}}{\sqrt{x}+\sqrt{10-x}} dx$ **(2)**

23. $\int_0^{\frac{\pi}{2}} \frac{\sin^n x dx}{\sin^n x + \cos^n x}$ = _____. **(2)**

24. Integrate $\frac{1}{x^n - 1}$ **(2)**

25. Integrate $\frac{x}{(x^2+1)(x-1)}$ **(2)**

26. Evaluate $\int_0^1 \frac{\tan^{-1} x}{1+x^2} dx$ **(2)**

27. $\int \sqrt{2ax - x^2} dx$ **(2)**

28. The value of $\int_{-\pi}^{\pi} \sin^3 x \cos^2 x dx$ is _____. **(2)**

29. Integrate $\frac{x}{e^{x^2}}$ **(2)**

30. Find the integral of $\tan^3 2x \sec 2x$ **(2)**

Email: www.alexborder@gmail.com Phone: +91-7982760217 Address: A-25 DLF Loni Ghaziabad UP-201301