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Time : 01:00:00 Hrs

FOR ANSWERS WHATSAPP - 8056206308

- 1) Integrate the following with respect to x.

$$\sqrt{3x+5}$$

- 2)

Integrate the following with respect to x. $\left(9x^2 - \frac{4}{x^2}\right)^2$

- 3) Integrate the following with respect to x.
- $\sqrt{x}(x^3 - 2x + 3)$

- 4) If
- $f(x) = x + b$
- ,
- $f(1) = 5$
- and
- $f(2) = 13$
- , then find
- $f(x)$

- 5) If
- $f'(x) = 8x^3 - 2x$
- and
- $f(2) = 8$
- , then find
- $f(x)$

- 6) Integrate the following with respect to x.

$$\left(\sqrt{2x} - \frac{1}{\sqrt{2x}}\right)^2$$

- 7) Integrate the following with respect to x.

$$\frac{x^3}{x+2}$$

- 8) Integrate the following with respect x

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

- 9) If
- $f'x = \frac{1}{x}$
- and
- $f(1) = \frac{\pi}{4}$
- , then find
- $f(x)$

- 10) Integrate the following with respect to x.

$$e^{x \log a} + e^{a \log a} - e^{n \log x}$$

- 11) Integrate the following with respect to x.

$$\frac{e^{3x} - e^{-3x}}{e^x}$$

- 12) Integrate the following with respect to x.

$$\frac{1}{x(\log x)^2}$$

- 13) Integrate the following with respect to x.

$$2\cos x - 3\sin x + 4\sec^2 x - 5\operatorname{cosec}^2 x$$

- 14) Integrate the following with respect to x.

$$\frac{1}{\sin^2 x \cos^2 x} [\text{Hint: } \sin^2 + \cos^2 x = 1]$$

- 15) Integrate the following with respect to x.

$$\sqrt{1 - \sin 2x}$$

- 16) Integrate the following with respect to x.

$$\log x$$

- 17)

Integrate the following with respect to x.

$$e^x \left[\frac{1}{x^2} - \frac{2}{x^3} \right]$$

18) Integrate the following with respect to x.

$$e^{3x} \left[\frac{3x-1}{9x^2} \right]$$

19) Integrate the following with respect to x

$$\frac{1}{9-16x^2}$$

20) Integrate the following with respect to x

$$\frac{1}{2x^2-9}$$

21) Integrate the following with respect to x

$$\frac{e^x}{e^{2x}-9}$$

22) Integrate the following with respect to x

$$\frac{1}{\sqrt{9x^2-7}}$$

23) Integrate the following with respect to x

$$\sqrt{4x^2-5}$$

24) Using second fundamental theorem, evaluate the following:

$$\int_0^1 e^{2x} dx$$

25) Using second fundamental theorem, evaluate the following:

$$\int_1^2 \frac{x dx}{x^2+1}$$

26) Using second fundamental theorem, evaluate the following:

$$\int_1^e \frac{dx}{x(1+\log x)^3}$$

27) Evaluate the following:

$$\Gamma(4)$$

28) Evaluate the following

$$\Gamma\left(\frac{1}{2}\right) = \sqrt{\pi}$$

29) Evaluate the following

$$\int_0^\infty e^{-4x} x^4 dx$$

30) Evaluate the following

$$\int_0^\infty e^{-\frac{x}{2}} x^5 dx$$

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Time : 00:45:00 Hrs

FOR ANSWERS WHATSAPP - 8056206308

- 1) Evaluate $\int \frac{2x^2-14x+24}{x-3} dx$
- 2) Evaluate $\int \frac{x+2}{\sqrt{2x+3}} dx$
- 3) Evaluate $\int \frac{1}{\sqrt{x+2}-\sqrt{x-2}} dx$
- 4) Evaluate $\int x^3 e^x dx$
- 5) Evaluate $\int (\log x)^2 dx$
- 6) Evaluate $\int \frac{dx}{2+x-x^2}$
- 7) Evaluate $\int \frac{dx}{x^2-3x+2}$
- 8) Evaluate $\int \frac{dx}{\sqrt{x^2-3x+2}}$
- 9) Evaluate $\int \frac{dx}{\sqrt{x^2+4x+8}}$
- 10) Evaluate $\int \sqrt{x^2-4x+3} dx$
- 11) Evaluate $\int \frac{1}{x-\sqrt{x^2-1}} dx$
- 12) Evaluate $\int_0^{\frac{\pi}{2}} \frac{\sin x}{\sin x + \cos x} dx$
- 13) Evaluate $\int_2^5 \frac{\sqrt{x}}{\sqrt{x} + \sqrt{7-x}} dx$
- 14) Evaluate the integral as the limit of a sum: $\int_0^1 x dx$
- 15) Evaluate $\int \sin^3 x \cos x dx$

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Time : 01:00:00 Hrs

FOR ANSWERS WHATSAPP - 8056206308

- 1) Evaluate $\int \frac{3x^2+6x+1}{(x+3)(x^2+1)} dx$
- 2) Evaluate $\int \frac{x^3}{(x^2+1)^3} dx$
- 3) Evaluate $\int \frac{dx}{x(x^3+1)}$
- 4) Evaluate $\int \frac{xe^x}{(1+x)^2} dx$
- 5) Evaluate $\int e^{2x} \left[\frac{2x-1}{4x^2} \right] dx$
- 6) Evaluate $\int \left[\frac{1}{\log x} - \frac{1}{(\log x)^2} \right] dx$
- 7) Evaluate $\int_0^{\frac{\pi}{2}} x \sin x dx$
- 8) Evaluate $\int_1^4 f(x) dx$, where $\begin{cases} 7x+3, & \text{if } 1 \leq x \leq 3 \\ 8x, & \text{if } 3 \leq x \leq 4 \end{cases}$
- 9) If $f(x) = \begin{cases} x^2, & -2 \leq x < 1 \\ x, & 1 \leq x < 2 \\ x-4, & 2 \leq x \leq 4 \end{cases}$, then find the following
 - (i) $\int_{-2}^1 f(x) dx$
 - (ii) $\int_{-2}^1 f(x) dx$
 - (iii) $\int_2^3 f(x) dx$
 - (iv) $\int_{-2}^{1.5} f(x) dx$
 - (v) $\int_1^3 f(x) dx$
- 10) Using integrals as limit of sums, evaluate $\int_2^4 (2x-1) dx$

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