

D. none of the above.

57. Differentiate the implicit function $3x^2y + xy^2 = 2y$, A. $\frac{6x + y^2}{3x^2 + 2xy - 2}$

B. $-\left(\frac{6xy - y^2}{3x^2 + 2xy - 2}\right)$ C. $\left(\frac{6xy - y^2}{3x^2 - 2xy + 2}\right)$ D. $\frac{6xy + y^2}{2 + 2xy - 3x^2}$

58. The 8th term of the maclaurin series of e^x , A. $\frac{x^8}{8!}$ B. $\frac{x^{8+1}}{(8+1)!}$ C. $\frac{x^7}{7!}$ D. $\frac{x^n}{n}$

59. The 3rd term of the maclaurin series of $\ln(x+1)$, A. $\frac{x^2}{3}$ B. $\frac{x^2}{2!}$ C. $\frac{x^3}{3}$ D. $\frac{x^{n+1}}{n}$

60. What is the coefficient of x^4 in the maclaren expansion of $\frac{e^x}{x}$?

A. $\frac{1}{4}$ B. $\frac{1}{4!}$ C. $\frac{1}{120}$ D. $\frac{1}{32}$

61. Obtain $\frac{dy}{dx}$, if $y = a^{\cos x}$ A. $a^{\cos x} \ln a$ B. $-\sin x a^{\cos x} \ln a$ C. $\cos x a^{\cos x - 1}$ D. $-\sin x a^{\cos x}$

62. The function $y = 9x^3 - 45x^2 + 48x + 11$ has a maximum value at $y = ?$ A. $\frac{7}{45}$ B. $-\frac{31}{3}$ C. $\frac{77}{3}$ D. $\frac{7}{3}$

63. The function $y = 9x^3 - 45x^2 + 48x + 11$ has a minimum value at $y = ?$ A. $\frac{7}{45}$ B. $-\frac{31}{3}$ C. $\frac{77}{3}$ D. $\frac{7}{3}$

64. If $y = 3x^2$, the increment Δy is A. $6x\Delta x + 3(\Delta x)^2$ B. $y^2 + 3(\Delta x)^2$ C. $3(\Delta x)^2$ D. $6x + 3\Delta x$

65. if $y = \sin x$, what is $\frac{d^3y}{dx^3}$ A. $\sec x$ B. $-\sin x$ C. $-\cos x$ D. $\tan x$

66. $\int \frac{x-1}{x^2-x-2} dx$ yields A. $\frac{2}{3} \ln\left(\frac{x+1}{2x-1}\right)$ B. $\frac{1}{3} \ln\left(\frac{2x-1}{x+1}\right)$ C. $\frac{2}{3} \ln(2x-1) - \frac{3}{4}$ D. $\frac{1}{3} \ln(x-2)(x+1)^2$

67. Obtain the integral $\int \log x dx$

A. $x(\log x + 1)$ B. $x(\log x - 1)$ C. $-x(\log x + 1)$ D. $x(1 - \log x)$

68. Obtain $\int \sin^2 x dx$ A. $\frac{1}{2}x - \sin 2x$ B. $\frac{1}{4}x + \frac{\sin 2x}{2}$ C. $\frac{1}{2}x - \frac{\sin x \cos x}{2}$ D. $\frac{1}{2}x + \frac{\sin 2x}{4}$

69. Evaluate $\int_0^1 \frac{4x}{\sqrt{x^2+1}} dx$ A. $\frac{1}{2}\sqrt{2}$ B. $4(\sqrt{2}-1)$ C. $\ln 2$ D. $4\sqrt{2}$

70. Evaluate $I_4 + I_2$, if $I_n = \int_0^{\pi} \tan^n x dx$ A. $\frac{1}{2}$ B. $\frac{1}{3}$ C. $\frac{1}{4}$ D. $\frac{1}{5}$

71. Solve $\int \sin x \cos x \cdot e^{\cos 2x} dx$ A. $\sin x e^{\cos 2x}$ B. $2e^{\cos 2x}$ C. $-\frac{1}{2}e^{\cos 2x}$ D. $\frac{1}{2} \sin x e^{\cos 2x}$

72. Solve $\int \frac{\ln x}{x} dx$ A. $\frac{e^x}{x}$ B. $\frac{x}{\ln x}$ C. $\frac{1}{x}(\ln x - 1)$ D. $\frac{(\ln x)^2}{2}$

73. Solve $\int \frac{1}{x \ln x} dx$ A. $\frac{e^x}{x}$ B. $\frac{x}{\ln x}$ C. $\ln(\ln x)$ D. $\frac{(\ln x)^2}{2}$

74. Which of the following is true about $I_n = \int \tan^n x dx$, $I_n =$ A. $\frac{\tan^{n-1} x}{n} + \frac{1}{n} I_{n-2}$
 B. $\frac{\tan^{n-1} x}{n} + \frac{1}{n^2} I_{n-2}$ C. $\frac{\tan^{n-1} x}{n-1} - \frac{1}{n^2} I_{n-2}$ D. $\frac{\tan^{n-1} x}{n-1} - \frac{1}{n^2} I_{n-2}$
75. If $y = \log(\sec x + \tan x)$, find $\frac{dy}{dx}$, A. $\cos x$ B. $\frac{\sec^2 x}{\sec x + \tan x}$ C. $\sec x$ D. $\sec x + \cot x$
76. Obtain $\int \frac{dx}{4-5x}$ A. $\frac{1}{5} \ln(4-5x)$ B. $\frac{5}{4-5x}$ C. $-\frac{1}{5} \ln(4-5x)$ D. $\frac{1}{5} \ln(5x-4)$
77. Find $\int \frac{2x}{x+1} dx$ A. $\frac{1}{2}(x - \ln(x+1))$ B. $x - \ln(x+1)$ C. $e^{\frac{x+1}{x}}$ D. $2(x - \ln(x+1))$
78. Evaluate $\int e^{x+4} dx$ A. e^x B. $\ln(x+1)$ C. e^{x+4} D. $\frac{1}{2}(e^x - e)$
79. Solve $\int_{-1}^1 (4x^3 - x^2) dx$ A. $\frac{2}{3}$ B. $-\frac{2}{3}$ C. $-\frac{4}{3}$ D. $\frac{4}{3}$
80. Evaluate $\int_0^\pi x \sin x dx$ A. -2 B. π C. 2 D. -1
- Evaluate $\int_0^{\frac{\pi}{3}} \tan x dx$ A. $\ln 2$ B. $\frac{1}{2} \ln 2$ C. $2\sqrt{2}$ D. $\frac{1}{2}$
81. Evaluate $\int_0^{\frac{\pi}{2}} \cos^6 x dx$ A. $\frac{8\pi}{35}$ B. $\frac{16}{70}$ C. $\frac{5\pi}{32}$ D. $\frac{16\pi}{70}$
82. Evaluate $\int_0^{\frac{\pi}{2}} \sin^6 x dx$ A. $\frac{8\pi}{35}$ B. $\frac{16}{70}$ C. $\frac{5\pi}{32}$ D. $\frac{16\pi}{70}$
83. Integrate $\int \frac{e^x}{\sqrt{1-e^x}} dx$ A. $\frac{e^x}{1-e^x}$ B. $2\sqrt{1-e^x}$ C. $\frac{1}{2}\sqrt{1-e^x}$ D. $-2\sqrt{1-e^x}$
84. Integrate $\int \frac{1}{x \ln x} dx$ A. $\frac{e^x}{x}$ B. $\ln(\ln x)$ C. $\frac{1}{2}(\ln x)^2$ D. $x \ln x$
85. integrate $\int (e^{3x} - 8) dx$ A. $e^{3x} + 8x$ B. $3e^{3x} - 4x^2$ C. $3e^{3x} + 8$ D. $\frac{e^{3x}}{3} - 8x$
86. Evaluate $\int \sin 4x \cos 2x dx$ A. $\sin 4x + \cos 2x$ B. $\sin 2x + \cos 4x$ C. $-\frac{1}{12}(\cos 6x + 3\cos 2x)$
 D. $\frac{1}{12}(\cos 6x + 3\cos 2x)$
87. $\int \frac{\sin^3 x}{\cos^2 x} dx$ A. $\sec x$ B. $\cot x + \sec x$ C. $\sec x + \sin x$ D. $\sec x + \cos x$
88. Find $\int \cos^5 x \sin 2x dx$ A. $\frac{\cos^5 x}{5}$ B. $-\frac{2\cos^7 x}{7}$ C. $\frac{2\cos^8 x}{8}$ D. $-\frac{2\cos^8 x}{8}$
89. Find $\int \sin^3 x \cos x dx$ A. $\frac{\cos^5 x}{5}$ B. $-\frac{2\cos^7 x}{7}$ C. $\frac{\cos^4 x}{4}$ D. $-\frac{2\cos^8 x}{8}$
90. Obtain $\int \frac{-x-1}{x^2-6x+8} dx$ A. $\frac{5}{2} \ln(x-4) - \frac{3}{2} \ln(x+2)$ B. $\frac{3}{2} \ln(x+2) + \frac{5}{2} \ln(x-4)$ C. $\frac{3}{2} \ln(x+2) - \frac{5}{2} \ln(x-4)$
 D. $\frac{3}{2} \ln(x+2) - \frac{5}{2} \ln(x-4)$
91. Integrate $\int \frac{x^2}{x+1} dx$ A. $\frac{x^2}{2} - 2x + \ln(x+1)$ B. $x^2 - \ln(x+1)$ C. $\frac{x^2}{2} - x + \ln(x+1)$ D. $\frac{x}{2} - \ln(x+1)$
92. Obtain the integral, $\int \frac{dx}{x^2+x}$ A. $\ln(x^2-x)$ B. $\ln\left(\frac{x}{x+1}\right)$ C. $\ln\left(\frac{x+1}{x}\right)$ D. $\frac{x}{2} \ln\left(\frac{x}{x+1}\right)$

94. Obtain $\int x e^{x^2} dx$ A. $2e^{x^2}$ B. $2xe^{x^2}$ C. $-\frac{1}{2}e^{x^2}$ D. $\frac{1}{2}e^{x^2}$
95. Integrate $\int 2x^3 e^{-x^4} dx$ A. e^{-x^4} B. $2e^{-x^4}$ C. $\ln(e^{-x^4})$ D. $-\frac{1}{2}e^{-x^4}$
96. Find $\int e^x \cos x dx$. A. $e^x \cos x + \sin x$ B. $\frac{e^x \cos x + e^x \sin x}{2}$ C. $\frac{e^x \sin x - e^x \cos x}{2}$ D. $\frac{2}{e^x \cos x}$
97. If $\int_1^e x(\ln x)^n = \frac{1}{2}e^2 - \frac{n}{2}I_{n-1}$, what is I_2 . A. $\frac{1}{4}e^2 + 2$ B. $\frac{1}{8}[e^2 + 3]$ C. $\frac{1}{4}(e^2 - 1)$ D. $\frac{1}{2}\left(\frac{e^2}{2} + \frac{1}{2}\right)$
IF YOU KNOW THE ANSWER EXPLAIN ABEG
98. Integrate $\int \sin 2x dx$ A. $\cos 2x$ B. $-\frac{\cos 2x}{2}$ C. $\sin x \cos x$ D. $\sec 2x$
99. Integrate $\int \cos 2x dx$ A. $\sin^2 2x$ B. $-\frac{\sin 2x}{2}$ C. $\sin x \cos x$ D. $\sec 2x$
ANS IS NOT CORRECT REMOVE NEG
- Differentiate the function $y = x^2 + \frac{1}{x^2}$ A. $2x - \sqrt{x}$ B. $2x - 2\sqrt{x}$ C. $2x - \frac{2}{x^3}$ D. $2x - \frac{1}{x^3}$

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