



MATHS

BOOKS - KC SINHA MATHS (HINGLISH)

INDEFINITE INTEGRALS - FOR BOARDS

Solved Examples

$$1. \int \frac{(1+x)^3}{\sqrt{x}} dx$$



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2.

If

$$\int(\sin 2x - \cos 2x)dx = \frac{1}{\sqrt{2}}\sin(2x - a) + C$$

, then a=



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3. If $f'(x) = x + \frac{1}{x}$ & $f(1) = 5/2$ then $f(x) = ?$



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$$4. \int \frac{1}{\sqrt{x+1} + \sqrt{x}} dx$$



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$$5. \int \frac{3x+5}{\sqrt{7x+9}} dx$$



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$$6. \text{Evaluate: } \int \frac{x^4 + 1}{x^2 + 1} dx$$



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$$7. \int \frac{\sec^2 x}{\cos ec^2 x} dx$$



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$$8. \text{ Evaluate: } \int \sin^4 2x \, dx$$



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$$9. \text{ Evaluate: } \int \sqrt{1 + \sin x} \, dx , \quad 0 \leq x \leq \pi$$



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10. Find $\int \frac{dx}{1 + \cos x}$



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11. Evaluate: $\int \frac{1}{1 + \sin x} dx$



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12. Evaluate $\int \sin 3x \cos 5x \, dx$



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$$13. \text{ Find } \int \sin^3 x \cos\left(\frac{x}{2}\right) dx$$



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$$14. \int \tan^{-1} \sqrt{\frac{1-\sin x}{1+\sin x}} dx, -\pi/2$$



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$$15. \text{ Evaluate: } \int \frac{\cos 5x + \cos 4x}{1 - 2 \cos 3x} dx$$



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16. Evaluate $\int a^{3x+3} dx, a > 0$



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17. Write a value of

$$\int \left(e^{x(\log_e a)} + e^{a(\log_e x)} \right) dx$$



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18. Evaluate: $\int \frac{8^{1+x} + 4^{1-x}}{2^x} dx$



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19. Evaluate: (i) $\int (5x + 3)\sqrt{2x - 1} dx$ (ii)
$$\int \frac{x}{\sqrt{x+a} - \sqrt{x+b}} dx$$



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20. Find $\int x^2 \sqrt{ax + b} dx$



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21. Evaluate: (i) $\int \frac{x}{\sqrt{x+4}} dx$ (ii) $\int \frac{2 - 3x}{\sqrt{1 + 3x}} dx$



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22. Evaluate $\int x(1 - x)^{2/3} dx$



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23. Evaluate: $\int \frac{x^2 + 1}{(x + 1)^2} dx$



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24. Find $\int \cos^3 x dx$



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25. Evaluate: $\int \cos^3 x \sqrt{s \in} dx$



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26. Evaluate: $\int \sin^3 x \cos^2 x dx$



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27. Evaluate: $\int \frac{1}{\sin x \cos^3 x} dx$



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28. $\int \sin^4 x dx$



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29. Find $\int \tan^n x \sec^2 x dx, (n \neq -1)$



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30. Evaluate: $\int \sec^4 x dx$



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31. $\int \tan x \, dx$



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32. Evaluate: $\int \tan^3 x \, dx$



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33. $\int \tan^3 2x \cdot \sec 2x \, dx$



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$$34. \int \cos ex^4 dx$$



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$$35. \int \cot^3 x \cos ex^4 dx$$



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$$36. \int \frac{dx}{\sqrt{1 + \cos 2x}}$$



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37. Find $\int \frac{dx}{\sin x + \cos x}$



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38. Evaluate: $\int \{11 + 2x(\tan x + \sec x)\}^{\frac{1}{2}} dx$



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39. Evaluate $\int \frac{\sin x}{\sin(x - \alpha)} dx$



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40. Evaluate: (i) $\int \frac{\sin(x - a)}{\sin(x - b)} dx$ (ii)
 $\int \frac{\sin(x - \alpha)}{\sin(x + \alpha)} dx$



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41. Evaluate $\int \frac{\sin x}{\sqrt{1 + \sin x}} dx$



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42. Evaluate $\int x \cos ex^2 \cot x^2 dx$



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43. Find $\int \frac{e^x(1+x)}{\cos^2(xe^2)} dx$



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44. Evaluate $\int \frac{\cos x}{\sqrt{1 + \sin x}} dx$



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45. Evaluate $\int \sqrt{2 + \sin 3t} \cos 3t dt$



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46. Evaluate $\int \frac{\sin 2x}{a^2 + b^2 \sin^2 x} dx$



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47. Evaluate $\int (\tan x - x) \tan^2 x dx$



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48. Evaluate: $\int \frac{x^5}{\sqrt{1+x^3}} dx$



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49. Evaluate $\int \frac{(1+\log x)^2}{x} dx$



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50. Evaluate: (i) $\int \frac{(\sin^{-1} x)^3}{\sqrt{1-x^2}} dx$ (ii)
 $\int \left(\frac{\sin(2+3\log x)}{x} \right) dx$



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51. Evaluate $\int \frac{e^{a \tan^{-1} x}}{1 + x^2} dx$



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52. Evaluate: $\int \frac{1}{e^x + e^{-x}} dx$



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53. Evaluate $\int \frac{dx}{1 + \cot x}$



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54. Evaluate $\int \left(1 - \frac{1}{x^2}\right) e^{x + \frac{1}{x}} dx$



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55. Evaluate: $\int \frac{\log\left(1 + \frac{1}{x}\right)}{x(1+x)} dx$



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56. Evaluate: $\int \sqrt{\frac{1-x}{1+x}} dx$



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57. Evaluate $\int \frac{\sec^2 x \tan x}{\sec^2 x + \tan^2 x} dx$



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58. Evaluate: $\int \frac{dx}{x^2(x^4 + 1)^{\frac{3}{4}}}$



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59. Evaluate $\int \frac{\sin 2x}{a^2 \cos^2 x + b^2 \sin^2 x} dx$



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60. Evaluate $\int \frac{2x \tan^{-1} x^2}{1 + x^4} dx$



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61. Evaluate $\int \frac{dx}{\sqrt{a^2 - x^2}}$



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62. Evaluate: $\int \sqrt{a^2 - x^2} dx$



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63. Evaluate: $\int \frac{1}{(a^2 - x^2)^{\frac{3}{2}}} dx$



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64. Evaluate: (i) $\int \frac{(\sin^{-1} x)^3}{\sqrt{1 - x^2}} dx$ (ii)
 $\int \left(\frac{\sin(2 + 3 \log x)}{x} \right) dx$



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65. Evaluate $\int \frac{dx}{a^2 + x^2}$



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66. Evaluate $\int \frac{x^3}{1 + x^8} dx$



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67. If $y = \int \frac{1}{(1+x^2)^{\frac{3}{2}}} dx$ and $y = 0$ when $x = 0$, then value of y when $x = 1$ is



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68. Evaluate: $\int \frac{1}{\sqrt{x^2 - a^2}} dx$



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69. Evaluate: $\int \frac{1}{x \sqrt{x^4 - 1}} dx$



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70. Evaluate $\int \frac{e^x}{\sqrt{e^{2x} - 4}} dx$



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71. Evaluate $\int \sqrt{\frac{1-x}{1+x}} dx$



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72. Evaluate $\int \sqrt{\frac{x}{1-x}} dx$



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73. Evaluate $\int \frac{dx}{\sqrt{(x-a)(b-x)}}$



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74. Evaluate $\int x e^x dx$



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75. Evaluate $\int x \sin 3x dx$



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76. Evaluate $\int x \cos^2 x dx$



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77. Evaluate $\int \cos \sqrt{x} dx$



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78. Evaluate: (i) $\int(5x + 3)\sqrt{2x - 1} dx$ (ii)
$$\int \frac{x}{\sqrt{x+a} - \sqrt{x+b}} dx$$



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79. Evaluate $\int \log x dx$



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80. Evaluate: $\int x \log(1 + x) dx$



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$$81. \text{ Evaluate } \int x \tan^{-1} x dx$$



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$$82. \text{ Evaluate } \int \frac{x \sin^{-1} x}{\sqrt{1 - x^2}} dx$$



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$$83. \text{ Evaluate } \int \sec^3 x dx$$



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84. Evaluate $\int \sqrt{4 - x^2} dx$



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85. Evaluate $\int e^{ax} \sin bx dx$



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86. Evaluate: $\int (1 + x) \log x dx$



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$$87. \int \frac{x \tan^{-1} x}{(1 + x^2)^{\frac{3}{2}}} dx$$



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$$88. \text{ Evaluate: } \int \frac{\sin^{-1} x}{x^2} dx$$



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$$89. \text{ Evaluate } \int \frac{\log x}{(1 + x)^3} dx$$



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90. Find $\int \cos 2x \cdot \log\left(\frac{\cos x + \sin x}{\cos x - \sin x}\right) dx$



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91. Evaluate $\int \frac{e^{m \tan^{-1} x}}{(1 + x^2)^{\frac{3}{2}}} dx$



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92. Evaluate $\int \frac{\sin^{-1} \sqrt{x} - \cos^{-1} \sqrt{x}}{\sin^{-1} \sqrt{x} + \cos^{-1} \sqrt{x}} dx$



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93. Evaluate $\int \sin^{-1} \sqrt{\frac{x}{a+x}} dx$



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94. Evaluate $\int e^{-x} \tan^{-1}(e^x) dx$



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$$95. \int \log x \cdot \sin^{-1} x dx$$



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$$96. \text{Evaluate } \int e^x (\tan x + \sec^2 x) dx$$



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$$97. \text{Evaluate } \int \frac{e^x(1 + \sin x)}{1 + \cos x} dx$$



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98. Evaluate $\int \frac{xe^x}{(1+x)^2} dx$



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99. Evaluate $\int \left[\frac{1}{\log x} - \frac{1}{(\log x)^2} \right] dx$



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100. Evaluate $\int \frac{(x^2 + 1)e^x}{(x+1)^2} dx$



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101. Evaluate $\int \frac{\log x}{(1 + \log x)^2} dx$



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102. Evaluate $\int \frac{e^{\sin x}}{\cos^2 x} (x \cos^3 x - \sin x) dx$



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103. Evaluate $\int \frac{dx}{\sqrt{1 - 2x - x^2}}$



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104. Evaluate: $\int \sqrt{2x^2 + 3x + 4} dx$



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105. Evaluate : $\int \frac{e^x}{\sqrt{5 - 4e^x - e^{2x}}} dx$



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106. Evaluate $\int \frac{x + 1}{\sqrt{2x^2 + x - 3}} dx$



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107. $\int \frac{x^2}{x^2 + 6x - 12} dx$



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108. Evaluate $\int \frac{dx}{a^2 - x^2}$, where $x < a$



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109. Evaluate $\int \frac{dx}{x^2 - a^2}$, $x > a$



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110. Evaluate $\int \frac{dx}{x(x^n + 1)}$



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111. Evaluate: $\int \frac{x}{(x+2)(3-2x)} dx$



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112. Evaluate: $\int \frac{2x-3}{(x^2-1)(2x+3)} dx$





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113. Evaluate $\int \frac{dx}{x[10 + 7\log_e x + (\log_e x)^2]}$



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114. Evaluate: $\int \frac{\sin x}{(2 + \cos x)(5 + \cos x)} dx$



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115. Evaluate: $\int \frac{x^2}{(1 + x^3)(2 + x^3)} dx$



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116. Evaluate: $\int \frac{2x - 1}{(x - 1)(x + 2)(x - 3)} dx$



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117. Evaluate: $\int \frac{\sin 2x}{(1 + \sin x)(2 + \sin x)} dx$



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118. Evaluate : $\int \frac{2x}{(x^2 + 1)(x^2 + 3)} dx$



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119. Evaluate $\int \frac{3x - 5}{(3x - 2)(x + 1)^2} dx$



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120. Evaluate: $\int \frac{x}{(x^2 + 1)(x + 1)} dx$



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121. Evaluate: $\int \frac{1}{1 + x + x^2 + x^3} dx$



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122. Evaluate: $\int \frac{x^3 + 3x + 2}{(x^2 + 1)^2(x + 1)} dx$



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123. Evaluate: $\int \frac{(x^2 + 1)(x^2 + 2)}{(x^2 + 3)(x^2 + 4)} dx$



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124. Evaluate $\int \sqrt{\sec x - 1} dx$



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125. Evaluate: $\int \frac{\sin x - \cos x}{\sqrt{\sin 2x}} dx$



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126. Evaluate: $\int \frac{\sqrt{16 + (\log x)^2}}{x} dx$



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127. Evaluate $\int \frac{\sin x}{\sin x - \cos x} dx$



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128. Evaluate: $\int \frac{2 \sin x + 3 \cos x}{3 \sin x + 4 \cos x} dx$



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129. Evaluate: $\int \frac{1}{3 + 2 \sin x + \cos x} dx$



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Exercise

$$1. \int(x^2 - 5x + 7)dx$$



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$$2. \int(ax^3 + bx^2 + cx + d)dx$$



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$$3. \int \left(x^{\frac{1}{3}} + 2x^{\frac{1}{2}} + x^{\frac{3}{2}} \right) dx$$



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$$4. \int \left(\frac{x^2 - 2x + 3}{x^4} \right) dx$$



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$$5. \int \left(\sqrt{x} + \frac{1}{\sqrt{x}} \right)^2 dx$$



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$$6. \int \frac{(x - 3)^2}{\sqrt{x}} dx$$



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$$7. \int \frac{(x^3 + 1)(x - 2)}{x^2 - x - 2} dx$$



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$$8. \int \frac{x^3 + 5x^2 - 4}{x^2} dx$$



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$$9. (i) \int \frac{x^3 - 1}{x^2} dx \quad (ii) \int (x^{2/3} + 1) dx$$



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$$10. \int x^2 \left(1 - \frac{1}{x^2} \right) dx$$



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$$11. \int (1 - x) \sqrt{x} dx$$



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$$12. \int \left(\sqrt{x} - \frac{1}{\sqrt{x}} \right)^2 dx$$



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$$13. \text{Find the integral } \int (2x^2 + e^x) dx$$



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$$14. \int \frac{2 - 3 \sin x}{\cos^2 x} dx$$





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15. $\int(2x - 3 \cos x + e^x)dx$



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16. Find the integral

$$\int(2x^2 - 3 \sin x + 5\sqrt{x})dx$$



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$$17. \int \left(5 \cos x - 4 \sin x + \frac{1}{\cos^2 x} \right) dx$$



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$$18. \int \frac{\sin^8 x - \cos^8 x}{1 - 2 \sin^2 x \cos^2 x} dx$$



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$$19. \int \frac{1 + 2 \sin x}{\cos^2 x} dx$$



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$$20. \int \frac{5 \cos^3 x + 7 \sin^3 x}{\sin^2 x \cos^2 x} dx$$



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$$21. \int \frac{e^x \sin x + \cot x + x \sin x}{\sin x} dx$$



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$$22. \int \sec(11 + 12x) \tan(11 + 12x) dx$$



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23. If $\frac{dy}{dx} = \cos x + \sec^2 x$ and when $x = 0, y = 0$, what is y ?



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24. Find the anti derivative F of f defined by

$$f(x) = 4x^3 - 6, \text{ where } F(0) = 3$$



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25. $\int \frac{1}{\sqrt{x+a} + \sqrt{x+b}} dx$



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$$26. \int \frac{dx}{\sqrt{x+3} - \sqrt{x+2}}$$



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$$27. \int \frac{dx}{\sqrt{5+3x} + \sqrt{4+3x}}$$



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$$28. \text{ Evaluate: } \int \frac{1}{\sqrt{1-2x} + \sqrt{3-2x}} dx$$



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$$29. \int \sqrt{ax + b} dx$$



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$$30. \int e^{2x+3} dx$$



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$$31. \text{Evaluate } \int \frac{x^2 - 1}{x^2 + 1} dx$$



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$$32. \int \sin^2(2x + 5) dx$$



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$$33. \text{ Evaluate } \int \cos^2 x dx$$



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$$34. \int \sin^3(2x + 1) dx$$



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$$35. \int \sin^3 x \cos^3 x dx$$



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$$36. \int \tan^2 x dx$$



Watch Video Solution

$$37. \int \sec^2 x \cos ec^2 x dx$$



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$$38. \int (\cot^2 2x + \tan^2 3x) dx$$



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$$39. \int (\tan x + \cot x)^2 dx$$



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$$40. \int \frac{\sin^2 x}{1 + \cos x} dx$$



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41. Integrate the functions $\frac{\cos 2x + 2 \sin^2 x}{\cos^2 x}$



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42. $\int \sin^4 x dx$



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43. $\int \sqrt{1 + \cos 2x} dx$



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$$44. \int \sqrt{1 + \sin\left(\frac{x}{2}\right)} dx$$



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$$45. \int \frac{\cos x}{1 + \cos x} dx$$



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$$46. \int \frac{\sec x}{\sec x + \tan x} dx$$



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47. If $\int \sqrt{1 + \sin 2x} dx = \sqrt{2} \sin(x + a) + b$,
then find values of a and b .



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48. $\int \sin 4x \cos 3x dx$



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$$49. \int \cos 2x \cos 4x dx$$



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$$50. \int \sin 3x \sin\left(\frac{x}{2}\right) dx$$



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$$51. \int \sin^2 x \cos 2x dx$$



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52. Evaluate the following integrals :

$$\int \frac{1 - \cos 2x}{1 + \cos 2x} dx$$



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$$53. \int \frac{\cos 2x}{\sin^2 x \cos^2 x} dx$$



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$$54. \int \frac{4 - 5 \cos x}{\sin^2 x} dx$$



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$$55. \int \frac{3 \cos x + 4}{\sin^2 x} dx$$



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$$56. \text{Evaluate : } \int \sec^2(7 - 4x) dx$$



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$$57. \int \tan^2(2x - 3) dx$$



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58. Evaluate: (i)

$$\int \sin^{-1}(\cos x) dx, \quad 0 \leq x \leq \pi \quad (\text{ii}) \quad \int \tan^{-1}$$

$$\{\sqrt{((1-\cos 2x)/(1+\cos 2x))}\} dx, \quad 0$$



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59. Evaluate: (i)

$$\int \sin^{-1}(\cos x) dx, \quad 0 \leq x \leq \pi \quad (\text{ii}) \quad \int \tan^{-1}$$

$$\{\sqrt{((1-\cos 2x)/(1+\cos 2x))}\} dx, \quad 0$$



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$$60. \int \cos^{-1} \left(\frac{1 - \tan^2 x}{1 + \tan^2 x} \right) dx$$



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$$61. \text{ Evaluate: (i)} \int \tan^{-1} \left(\frac{\sin 2x}{1 + \cos 2x} \right) dx \text{ (ii)}$$
$$\int \cos^{-1}(\sin x) dx$$



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$$62. \int \frac{e^{5 \log x} - e^{4 \log x}}{e^{3 \log x} - e^{2 \log x}} dx$$



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$$63. \int \frac{e^{\log \sqrt{x}}}{x} dx$$



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$$64. \int (x + 2) \sqrt{3x + 5} dx$$



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$$65. \int (x - 1) \sqrt{x + 1} dx$$



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$$66. \int x \sqrt{2x + 1} dx$$



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$$67. \int x(3x - 5)^4 dx$$



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$$68. \int (x + 2) \sqrt{x - 3} dx$$



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$$69. \int (ax + b) \sqrt{cx + d} dx$$



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$$70. \int x \sqrt{ax + b} dx$$



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$$71. \int x^2 \sqrt{x + 2} dx$$



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72. $\int (2x^2 + 3)\sqrt{x+2} dx$ (ii)

$$\int \frac{x^2 + 3x + 1}{(x+1)^2} dx$$



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73. $\int \frac{x}{\sqrt{x+5}} dx$



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$$74. \int x^2 \sqrt{x+2} dx \text{ (ii)} \quad \int \frac{x^2}{\sqrt{x-1}} dx$$



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$$75. \int \frac{x^2}{\sqrt{3x+4}} dx \text{ (ii)} \quad \int \frac{2x-1}{(x-1)^2} dx$$



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$$76. \int \frac{x^2 + 3x + 2}{(x-2)(x+1)} dx$$



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$$77. \int \frac{dx}{x^{\frac{1}{2}} + x^{\frac{1}{3}}}$$



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$$78. \int \sin^3 x dx$$



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$$79. \int \cos^5 x dx$$



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$$80. \int \sin^2 x \cos x dx$$



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$$81. \int \cos^2 x \sin^3 x dx$$



Watch Video Solution

$$82. \int \sin^{\frac{3}{4}} x \cos x dx$$



Watch Video Solution

$$83. \int \sin^3 x \sin 2x dx$$



Watch Video Solution

$$84. \int \sin x \cos^3 x dx$$



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$$85. \int \cos x \tan^3 x dx$$



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$$86. \int \frac{\cos^3 x}{\sqrt{\sin x}} dx$$



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$$87. \int \frac{\sec \theta}{\tan^2 \theta} d\theta$$



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$$88. \int \cos^3 x \cdot e^{\log \sin x} dx$$



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$$89. \int \sin^3 2x dx$$



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$$90. \int \cos^7 ax \sin ax dx$$



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$$91. \int \frac{dx}{\sin^2 x \cos^2 x} \text{ equals } (A) \tan x + \cot x + C$$

- (B) $\tan x - \cot x + C$ (C) $\tan x \cot x + C$ (D)

$$\tan x - \cot 2x + C$$



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$$92. \int \frac{dx}{\sin^3 x \cos^5 x}$$



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$$93. \int \sqrt{\frac{\cos x}{\sin^5 x}} dx$$



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$$94. \int \frac{dx}{4 \sin 2x \cos^2 x} dx$$



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$$95. \int \frac{\sin^6 x + \cos^6 x}{\sin^2 x \cdot \cos^2 x} dx \quad (\text{i})$$

$$\tan x + \cot x + 3x + C \quad (\text{ii})$$

$$\tan x + \cot x - 3x + C \quad (\text{iii})$$

$$\tan x - \cot x - 3x + C \quad (\text{iv})$$

$$\tan x - \cot x + 3x + C$$



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$$96. \int \tan x \sec^2 x dx$$



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$$97. \int \tan^5 \theta \sec^4 d\theta$$



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$$98. \int \sec^6 x dx$$



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$$99. \int \sec^3 x \tan x dx$$



Watch Video Solution

$$100. \int \sec^6 x \tan x dx$$



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$$101. \int \sec^n x \tan x dx, n \neq 0$$



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$$102. \int \sec^3 x \tan x dx$$



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$$103. \int \tan^3 2x \sec 2x dx$$



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$$104. \int \sec^{\frac{7}{2}} x \tan x dx$$



Watch Video Solution

$$105. \int \tan^5 x dx$$



Watch Video Solution

$$106. \int \cot^n \cos e c^2 x dx, n \neq -1$$



Watch Video Solution

$$107. \int \cot^3 x dx$$



Watch Video Solution

$$108. \int \cot^4 x dx$$



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$$109. \int \frac{\sin^2 x}{(1 + \cos x)^2} dx$$



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$$110. \text{ Evaluate: (i) } \int \sqrt{\frac{1 - \cos 2x}{1 + \cos 2x}} dx \quad (\text{ii}) \int \sqrt{\frac{1 + \cos x}{1 - \cos x}} dx$$



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111. Evaluate: (i) $\int \frac{1}{\sqrt{1 - \cos 2x}} dx$ (ii)
 $\int \frac{1}{\sqrt{1 + \cos x}} dx$



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112. $\int \sec(ax + b) dx$



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$$113. \int \frac{dx}{\cos x - \sin x}$$



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$$114. \int \frac{dx}{\cos x \sin^2 x}$$



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$$115. \int \frac{1 + \cos x}{\sin x} dx$$



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$$116. \int \frac{dx}{\sqrt{3} \cos x + \sin x}$$



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$$117. \int \frac{\sec x}{b + a \tan x} dx$$



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$$118. \int \frac{dx}{\sin x + \tan x}$$



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$$119. \int \frac{dx}{\sin x \cos^2 x}$$



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$$120. \int \frac{dx}{\sqrt{13 + 5 \cos x - 12 \sin x}}$$



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$$121. \text{Example: } \frac{\sin x}{\sin(x + a)} dx$$



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$$122. \int \frac{\sin x}{\sqrt{1 + \cos x}} dx$$



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$$123. \int \frac{\sin 2x}{\sin(x - \alpha)\sin(x + \alpha)} dx$$



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$$124. \int \frac{\cos \sqrt{x}}{\sqrt{x}} dx$$



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$$125. \int \frac{1}{x^2} \sin\left(\frac{1}{x}\right) dx$$



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$$126. \int e^x \cos(e^x + 2) dx$$



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$$127. \int \frac{\sin \sqrt{x+1}}{\sqrt{x+1}} dx$$



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$$128. \int x^2 \sec x^3 dx$$



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$$129. \int x^{\frac{1}{3}} \sin\left(x^{\frac{4}{3}}\right) dx$$



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$$130. \int \frac{\cos(\log_e x)}{x} dx$$



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$$131. \int \frac{\sec^2(\log x)}{x} dx$$



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$$132. \int \frac{\cos ec^2(\log x)}{x} dx$$



Watch Video Solution

$$133. \int \frac{\tan \sqrt{x} \sec^2 \sqrt{x}}{\sqrt{x}} dx$$



Watch Video Solution

$$134. \int \frac{1}{x \cos^2(\log_e x)} dx$$



Watch Video Solution

$$135. \int e^x \tan e^x \sec e^x dx$$



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$$136. \int \frac{\sec^2 \sqrt{x+1}}{\sqrt{x+1}} dx$$



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$$137. \int \sin x \sin(\cos x) dx$$



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$$138. \text{ Evaluate:} \quad (i) \quad \int \frac{\sin \sqrt{x}}{\sqrt{x}} dx \quad (ii)$$
$$\int \frac{(x+1)e^x}{\sin^2(x e^x)} dx$$



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$$139. \int \frac{\cos \sqrt{ax+b}}{\sqrt{ax+b}} dx$$



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$$140. \int \frac{\sin(\tan^{-1} x)}{1+x^2} dx$$



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$$141. \text{ Evaluate: } \int \frac{\cos x}{(1+\sin x)^2} dx$$



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$$142. \text{ Evaluate: } \int \frac{\sin x}{1+\cos x} dx$$



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143. Evaluate: $\int \frac{\sin x}{(1 + \cos x)^2} dx$



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144. Evaluate: $\int \frac{\sec^2 x}{\sqrt{1 + \tan x}} dx$



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145. Evaluate: $\int \frac{\cos x}{1 + \sin^2 x} dx$



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146. Find $\int \cos 6x \sqrt{1 + \sin 6x} dx$



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147. Evaluate: $\int \frac{\sin x + \cos x}{\sin x - \cos x} dx$



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148. Evaluate: $\int \frac{2 \cos x - 3 \sin x}{6 \cos x + 4 \sin x} dx$



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149. Evaluate: $\int \frac{\sec^2 x}{\sqrt{1 - \tan^2 x}} dx$



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150. Evaluate: $\int \frac{dx}{\cos^2 x (1 - \tan x)^2}$



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151. Choose the correct answers

$$\int \frac{\cos 2x}{(\sin x + \cos x)^2} dx \text{ is equal(A)}$$

$$\frac{-1}{\sin x + \cos x} + C \quad (\text{B}) \log|\sin x + \cos x| + C \\ \text{C) } \log|\sin x - \cos x| + C \quad (\text{D}) \frac{1}{(\sin x + \cos x)^2}$$



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152. Evaluate: $\int \frac{\cos x - \sin x}{1 + \sin 2x} dx$



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153. Evaluate: $\int (\cot x + x) \cot^2 x dx$



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154. Evaluate: $\int \sqrt{\sin 2x} \cos 2x dx$



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155. Evaluate: $\int (4x + 3) \sqrt{4x^2 + 6x + 1} dx$



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156. Evaluate: $\int x \sqrt{1 + x^2} dx$



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157. Evaluate: $\int x \sqrt{1 + 2x^2} dx$



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158. Evaluate: $\int \frac{3x - 1}{\sqrt{3x^2 - 2x + 7}} dx$



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159. Evaluate: $\int(x - 1)\sqrt{x^2 - 2x}dx$



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160. Evaluate: $\int \frac{2ax + b}{ax^2 + bx + c} dx$



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161. Evaluate: $\int \frac{2x}{1 + x^2} dx$



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162. Evaluate: $\int \frac{x^2}{x^3 + 1} dx$



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163. Evaluate: $\int \frac{x^2}{(2 + 3x^3)^3} dx$



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164. Evaluate: $\int \frac{x}{\sqrt{a^2 - x^2}} dx$



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$$165. \int \frac{x \, dx}{(ax^2 + b)^p}$$



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$$166. \text{ Evaluate: } \int x^3 \sqrt{x^2 + 5} \, dx$$



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$$167. \text{ Evaluate: } \int x^2 \sqrt{a^3 + x^3} \, dx$$



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168. Evaluate: $\int(x^3 - 1)^{\frac{1}{3}}x^5 dx$



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169. Evaluate: $\int \frac{x}{9 - 4x^2} dx$



Watch Video Solution

170. Evaluate: $\int \frac{x^3}{\sqrt{x^2 + 3}} dx$



Watch Video Solution

171. Evaluate: $\int \frac{x^3}{(x^2 - a^2)^{\frac{3}{2}}} dx$



Watch Video Solution

172. Evaluate: $\int \frac{1}{x \log_e x} dx$



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173. Evaluate: $\int \frac{dx}{x(\log x)^m}, x > 0$



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174. Evaluate: $\int \frac{dx}{x(1 + \log_e x)^2}$



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175. Evaluate: $\int \frac{\tan x}{\log_e \cos x} dx$



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176. Evaluate: $\int \cot x \log_e \sin x dx$



Watch Video Solution

177. Evaluate: $\int \frac{\cot x}{\log \sin x} dx$



Watch Video Solution

178. Evaluate: $\int \frac{1}{x \log x \log(\log x)} dx$



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179. Evaluate: $\int \frac{e^x}{e^x + 2} dx$



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180. Evaluate: $\int \frac{e^x}{(3 - e^x)^2} dx$



Watch Video Solution

181. Evaluate: $\int e^{\tan x} \sec^2 x dx$



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182. Evaluate: $\int x e^{x^2} dx$



Watch Video Solution

183. Evaluate: $\int \frac{x}{e^{x^2}} dx$



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184. Evaluate: $\int \frac{(\tan^{-1} x)^2}{1 + x^2} dx$



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185. Evaluate: $\int \frac{dx}{(1 + x^2)\tan^{-1} x}$



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186. Evaluate: $\int \frac{e^{\sin^{-1} x}}{\sqrt{1 - x^2}} dx$



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187. Evaluate: $\int \frac{1}{\sqrt{1 - x^2} \cos^{-1} x} dx$



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188. Evaluate: $\int \frac{x^2 \tan^{-1} x^3}{1 + x^6} dx$



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$$189. \int (2x + 4) \sqrt{x^2 + 4x + 3} dx$$



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$$190. \text{ Evaluate: } \int \frac{1+x^2}{x^2} e^{x-\frac{1}{x}} dx$$



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$$191. \text{ Evaluate: } \int \frac{1}{\sqrt{x}+x} dx$$



Watch Video Solution

192. Evaluate: $\int \frac{\tan^2 x \sec^2 x}{1 + \tan^6 x} dx$



Watch Video Solution

193. Evaluate: $\int \frac{1}{x \log x \log(\log x)} dx$



Watch Video Solution

194. Evaluate: $\int \frac{e^{2x}}{4\sqrt{e^x + 1}} dx$



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$$195. \int \frac{dx}{x\sqrt{x^{2n} - a^{2n}}}$$



Watch Video Solution

$$196. \text{ Evaluate: } \int \sqrt{\sec x + 1} dx$$



Watch Video Solution

$$197. \text{ Evaluate: } \int \frac{\sin 2x}{\sin^4 x + \cos^4 x} dx$$



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198. Evaluate: $\int \frac{x^{e-1} - e^{x-1}}{x^e - e^x} dx$



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199. Evaluate: $\int \frac{1 + \cos \theta}{\theta + \sin \theta} d\theta$



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200. Evaluate: $\int \frac{1 + \tan x}{x + \log \sec x} dx$



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201. Evaluate: $\int \frac{(3 \tan^2 x + 2) \sec^2 x}{(\tan^3 x + 2 \tan x + 5)} dx$



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202. Evaluate: $\int \frac{1 + \sin 2x}{x + \sin^2 x} dx$



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203. Evaluate: $\int \frac{dx}{x - \sqrt{x}}$



Watch Video Solution

204. Evaluate: $\int \frac{1 - \cot x}{1 + \cot x} dx$



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205. Evaluate: $\int \frac{e^{\tan^{-1} x}}{1 + x^2} dx$



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206. Evaluate: $\int \frac{\tan^4 \sqrt{x} \sec^2 \sqrt{x}}{\sqrt{x}} dx$



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207. Evaluate: $\int \frac{\tan x \sec^2 x}{1 - \tan^2 x} dx$



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208. Evaluate: $\int \frac{a}{b + ce^x} dx$



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209. Evaluate: $\int \frac{\sin 2x}{(a + b \cos x)^2} dx$



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210. Evaluate: $\int \frac{x^5}{\sqrt{1+x^2}} dx$



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211. Evaluate: $\int e^{3 \log x} (1+x^4)^{-1} dx$



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212. $\int \frac{dx}{\sqrt[3]{(x+1)^2(x-1)^4}}$



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213.

Evaluate:

$$\int \frac{dx}{\sqrt{1+x^2} \sqrt{\log(x + \sqrt{1+x^2})}}$$



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214. $\int [f(ax + b)]^n f'(ax + b) dx$



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$$215. \int \frac{dx}{\sqrt{\sin^3 x \sin(x + \alpha)}}$$



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$$216. \text{ Evaluate: } \int \sqrt{1 - x^2} dx$$



Watch Video Solution

$$217. \text{ Evaluate: } \int \frac{dx}{\sqrt{1 - x^2}}$$



Watch Video Solution

218. Evaluate: $\int \frac{dx}{x^2 \sqrt{a^2 - x^2}}$



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219. Evaluate: $\int \frac{1 + x^2}{\sqrt{1 - x^2}} dx$



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220. Evaluate: $\int \frac{2x}{\sqrt{1 - x^4}} dx$



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221. Evaluate: $\int \frac{x^2}{\sqrt{1 - x^6}} dx$



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222. Evaluate: $\int \frac{dx}{\sqrt{4 - x^2}}$



Watch Video Solution

223. Evaluate: $\int \frac{\cos x}{\sqrt{4 - \sin^2 x}} dx$



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224. Evaluate: $\int \frac{dx}{9 + x^2}$



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225. Evaluate: $\int \frac{x + 1}{\sqrt{1 + x^2}} dx$



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226. $\int \frac{x}{1 + x^4} dx$



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227. Evaluate: $\int \frac{x^5}{1 + x^{12}} dx$



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228. Evaluate: $\int \frac{dx}{x^2 \sqrt{1 + x^2}}$



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229. Evaluate: $\int \frac{e^{2x}}{1 + e^{4x}} dx$





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230. Evaluate: $\int \frac{e^x - 1}{e^x + 1} dx$



Watch Video Solution

231. Evaluate: $\int \frac{dx}{x\sqrt{x^2 - 1}}$



Watch Video Solution

232. Evaluate: $\int \frac{x^3}{(x^2 - a^2)^{\frac{3}{2}}} dx$



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233. Evaluate: $\int \frac{e^x}{\sqrt{e^{2x} - 9}} dx$



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234. Evaluate: $\int \frac{dx}{\sqrt{e^{2x} - 1}}$



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235. Evaluate: $\int \sqrt{\frac{a-x}{a+x}} dx$



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236. Evaluate: $\int \sqrt{\frac{1+x}{1-x}} dx$



Watch Video Solution

237. Evaluate: $\int xe^{2x} dx$



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238. Evaluate: $\int x \cos x dx$



Watch Video Solution

239. Evaluate: $\int x \sin 2x dx$



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240. Evaluate: $\int x \cos x dx$



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241. Evaluate: $\int x \cos(2x + 3) dx$



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242. Evaluate: $\int(x + 1)\cos x dx$



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243. Evaluate: $\int x \sin 2x \cos 2x dx$



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244. Evaluate: $\int x \sin x \sin 2x dx$



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245. Evaluate: $\int x \cos ax \cos bx dx$



Watch Video Solution

246. Evaluate: $\int x \sin 2x \sin 3x dx$



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247. Evaluate: $\int x \sec^2 x dx$



Watch Video Solution

248. Evaluate: $\int \frac{x}{1 + \cos x} dx$



Watch Video Solution

249. Evaluate: $\int x \tan x \sec^2 x dx$



Watch Video Solution

250. Evaluate: $\int x \sin^2 x \cos^2 x dx$



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251. Evaluate: $\int x \cos^2 ax dx$



Watch Video Solution

252. Evaluate: $\int x \sin^3 x dx$



Watch Video Solution

253. Evaluate: $\int x^2 \cos 2x dx$



Watch Video Solution

254. Evaluate: $\int x^2 \sin 2x dx$



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255. Evaluate: $\int \sin \sqrt{x} dx$



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256. Evaluate: $\int x^3 \sin x^2 dx$



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257. Evaluate: $\int(ax + b)\sqrt{cx + d}dx$



Watch Video Solution

258. Evaluate: $\int x^2 \sqrt{ax + b} dx$



Watch Video Solution

259. Evaluate: $\int x^2 \log x dx$



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260. Evaluate: $\int x \log x dx$



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261. Evaluate: $\int \log_{10} x dx$



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262. Evaluate: $\int \log(x + 1) dx$



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263. Evaluate: $\int(x^2 + 1)\log x dx$



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264. Evaluate: $\int x \log 2x dx$



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265. Evaluate: $\int \log(2 + x^2) dx$



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266. Evaluate: $\int \frac{\log(\log x)}{x} dx$



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267. Evaluate: $\int \sqrt{x} (\log x)^2 dx$



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268. Evaluate: $\int \cos^{-1} x dx$



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269. Evaluate: $\int \tan^{-1} x dx$



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270. Evaluate: $\int \cos^{-1} \left(\frac{1-x^2}{1+x^2} \right) dx$



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271. Evaluate: $\int \sin^{-1} \left(\frac{2x}{1+x^2} \right) dx$



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272. Evaluate: $\int \frac{x \cos^{-1} x}{\sqrt{1 - x^2}} dx$



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273. Evaluate: $\int x^2 \sin^{-1} x dx$



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274. Evaluate: $\int \cos ec^3 x dx$



Watch Video Solution

275. Evaluate: $\int e^{ax} \cos bx dx$



Watch Video Solution

276. Evaluate: $\int e^{-x} \sin x dx$



Watch Video Solution

277. Evaluate: $\int e^{2x} \sin x dx$



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278. Evaluate: $\int \frac{\cos^{-1} x}{x^2} dx$



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279. Evaluate: $\int x 2^x dx$



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280. Evaluate: $\int \frac{\log x}{x^2} dx$



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281. Evaluate: $\int e^{\sin x} \sin 2x dx$



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282. Evaluate: $\int (\sin^{-1} x)^2 dx$



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283.

Evaluate

$$\int \sqrt{x^2 + 1} \frac{\log(x^2 + 1) - 2 \log x}{x^4} dx$$



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284. Evaluate: $\int \tan^{-1} \sqrt{\frac{1-x}{1+x}} dx$



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285. Evaluate : $\int \left(\frac{x - \sin x}{1 - \cos x} \right) dx.$



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286. Evaluate: $\int \frac{e^x(1 + x \log x)}{x} dx$



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287. Evaluate: $\int e^x \left(\tan^{-1} x + \frac{1}{1+x^2} \right) dx$



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288. Evaluate: $\int e^x (\sin x + \cos x) dx$



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289. Evaluate: $\int e^x \frac{1 - \sin x}{1 - \cos x} dx$



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290. Evaluate: $\int e^x \frac{1 + x}{(2 + x)^2} dx$



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291. Evaluate: $\int e^x \frac{(1 - x)^2}{(1 + x^2)^2} dx$



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292. Evaluate: $\int \frac{e^x(x^3 + x + 1)}{(1 + x^2)^{\frac{3}{2}}} dx$



Watch Video Solution

293. Evaluate: $\int e^x(\tan x - \log \cos x) dx$



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294. Evaluate: $\int e^x(\cot x - \cos ec^2 x) dx$



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295. Evaluate: $\int e^x (\tan x + \log \sec x) dx$



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296. Evaluate: $\int e^x (\cot x + \log \sin x) dx$



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297. Choose the correct answer

$$\int e^x \sec x (1 + \tan x) dx$$

(A) $e^x \cos x + C$

(B)

(C) $e^x \sec x + C$

(D) $e^x \sin x + C$



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298. Evaluate: $\int e^x \frac{\sqrt{1 - x^2} \sin^{-1} x + 1}{\sqrt{1 - x^2}} dx$



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299. Evaluate: $\int e^x \left(\frac{1}{x^2} - \frac{2}{x^3} \right) dx$



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300. Evaluate: $\int e^x \left(\frac{1}{x} - \frac{1}{x^2} \right) dx$



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301. Evaluate: $\int \frac{2x - 1}{4x^2} e^{2x} dx$



Watch Video Solution

302. Evaluate: $\int \frac{x - 3}{(x - 1)^3} e^x dx$



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303. Evaluate: $\int \frac{2-x}{(1-x)^2} e^x dx$



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304. $\int e^x \frac{2 - \sin 2x}{1 - \cos 2x} dx$



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305. Evaluate : $\int \left(e^x \frac{2 + \sin 2x}{2 \cos^2 x} \right) dx$



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306. Evaluate: $\int [\tan(\log x) + \sec^2(\log x)] dx$



Watch Video Solution

307. Evaluate: $\int \frac{e^x (1 - x)^2}{(1 + x^2)^2} dx$



Watch Video Solution

$$308. \int \frac{xe^{2x}}{(1+2x)^2} dx$$



Watch Video Solution

$$309. \text{ Evaluate: } \int e^{\tan^{-1} x} \left(1 + \frac{x}{1+x^2} \right) dx$$



Watch Video Solution

$$310. \text{ Evaluate: } \int \frac{1}{x} \left[x(\log x)^2 + 2\log x \right] e^x dx$$



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311. Evaluate: (i) $\int \frac{1}{\sqrt{1 + 4x^2}} dx$ (ii)

$$\int \frac{1}{\sqrt{a^2 + b^2 x^2}} dx$$



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312. $\int \left(\frac{1}{\sqrt{9 - 25x^2}} \right) dx$



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313. Evaluate: $\int \sqrt{3x^2 + 4x + 1} dx$



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314. Evaluate: $\int \frac{dx}{\sqrt{x^2 - 3x + 2}}$



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315. Evaluate: $\int \frac{dx}{\sqrt{10 - 8x - 2x^2}}$



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316. Evaluate: $\int \frac{dx}{\sqrt{4 - 2x - 2x^2}}$



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317. Evaluate: $\int \frac{dx}{\sqrt{16 - 2x - 2x^2}}$



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318. Evaluate: $\int \frac{dx}{\sqrt{x^2 + 2x + 2}}$



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319. Integrate the functions $\frac{1}{\sqrt{7 - 6x} - x^2}$



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320. Evaluate: $\int \frac{dx}{\sqrt{5x^2 - 2x}}$



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321. Integrate the functions $\frac{1}{\sqrt{8 + 3x - x^2}}$



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322. Evaluate: $\int \frac{dx}{\sqrt{2x - x^2}}$



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323. Evaluate: $\int \frac{dx}{\sqrt{(x - 1)(x - 2)}}$



Watch Video Solution

324. Evaluate: $\int \frac{dx}{\sqrt{(x - 1)(2 - x)}}$



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325. $\int \frac{1}{3x^2 + 13x - 10} dx$



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326. Evaluate: $\int \frac{dx}{x^2 - 6x + 13}$



Watch Video Solution

327. Evaluate: $\sqrt{4 - x^2}$



Watch Video Solution

328. Evaluate: $\int \sqrt{1 - 4x^2} dx$



Watch Video Solution

329. Evaluate: $\int \frac{1}{\sqrt{3 - 2x - x^2}} dx$



Watch Video Solution

330. Evaluate: $\int \sqrt{1 - 4x - x^2} dx$



Watch Video Solution

331. Evaluate: $\int \sqrt{1 + x^2} dx$



Watch Video Solution

332. Evaluate: $\int \sqrt{1 + \frac{x^2}{9}} dx$



Watch Video Solution

333. Evaluate: $\int \sqrt{x^2 + 4x + 1} dx$



Watch Video Solution

334. Evaluate: $\int \sqrt{x^2 + 4x + 6} dx$



Watch Video Solution

$$335. \int \frac{x + 2}{2x^2 + 6x + 5} \cdot dx$$



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$$336. \int \frac{3x + 1}{2x^2 - 2x + 3} dx$$



Watch Video Solution

$$337. \text{ Evaluate: } \int \frac{x - 1}{\sqrt{x^2 - 1}} dx$$



Watch Video Solution

338. Evaluate: $\int \frac{x + 2}{\sqrt{x^2 - 1}} dx$



Watch Video Solution

339. Evaluate: $\int \frac{5x + 3}{\sqrt{x^2 + 4x + 10}} dx$



Watch Video Solution

340. $\int \frac{x + 3}{\sqrt{5 - 4x - x^2}} dx$



Watch Video Solution

341. Evaluate: $\int \frac{x + 2}{\sqrt{x^2 - 2x + 3}} dx$



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342. Evaluate : $\int \frac{6x + 7}{\sqrt{(x - 5)(x - 4)}} dx$



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343. $\int x \sqrt{x + x^2} dx$



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344. Evaluate: $\int(x + 3) \sqrt{3 - 4x - x^2} dx$



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345. Evaluate: $\int \frac{x^2}{1 - x^6} dx$



Watch Video Solution

346. Evaluate: $\int \frac{3x}{1 + 2x^4} dx$



Watch Video Solution

347. Evaluate: $\int \frac{x^2}{\sqrt{x^6 + a^6}} dx$



Watch Video Solution

348. Evaluate: $\int \frac{x}{x^2 + x + 1} dx$



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349. $\int \frac{dx}{x^2 - 9}$



Watch Video Solution

$$350. \int \frac{x}{(x+1)(x+2)} dx$$



Watch Video Solution

$$351. \int \frac{dx}{(x+1)(x+2)}$$



Watch Video Solution

$$352. \int \frac{2x+1}{(x+2)(x-3)} dx$$



Watch Video Solution

$$353. \int \frac{2x}{x^2 + 3x + 2} dx$$



Watch Video Solution

$$354. \int \frac{5x}{(x+1)(x^2-4)} dx$$



Watch Video Solution

$$355. \int \frac{x}{(x-1)(x-2)(x-3)} dx$$



Watch Video Solution

$$356. \int \frac{2x - 3}{(x^2 - 1)(2x + 3)} dx$$



Watch Video Solution

$$357. \int \frac{\cos x}{(1 + \sin x)(2 + \sin x)} dx$$



Watch Video Solution

$$358. \text{ Evaluate: } \int \frac{x + 1}{x(1 + x e^x)} dx$$



Watch Video Solution

$$359. \int \frac{\sec^2 x}{(2 + \tan x)(3 + \tan x)} dx$$



Watch Video Solution

$$360. \int \frac{dx}{x(x^5 + 1)}$$



Watch Video Solution

$$361. \int \frac{dx}{x(x^6 + 1)}$$



Watch Video Solution

$$362. \int \frac{dx}{e^x - 1}$$



Watch Video Solution

$$363. \int \frac{e^x}{(1 + e^x)(e + e^x)} dx$$



Watch Video Solution

$$364. \int \frac{dx}{\sin x(3 + 2 \cos x)}$$



Watch Video Solution

$$365. \int \frac{1}{1 + 3e^x + 2e^{2x}} dx$$



Watch Video Solution

$$366. \int \frac{x}{(x - 1)^2(x + 2)} dx$$



Watch Video Solution

$$367. \int \frac{3x - 2}{(x + 1)^2(x + 3)} dx$$



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$$368. \int \frac{(3 \sin \phi - 2) \cos \phi}{5 - \cos^2 \phi - 4 \sin \phi} d\phi$$



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$$369. \int \frac{3x + 1}{(x - 2)^2(x + 2)} dx$$



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$$370. \int \frac{x^2 + x + 1}{(x - 1)^3} dx$$



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$$371. \int \frac{2}{(1 - x)(1 + x^2)} dx$$



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$$372. \text{Find } \int \frac{x^2 + x + 1}{(x + 2)(x^2 + 1)} dx$$



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373. Evaluate: $\int \frac{x^2 + 1}{x^2 - 5x + 6} dx$



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374. $\int \frac{x^2}{x^2 + 6x + 12} dx$



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375. $\int \frac{1 - \cos x}{\cos x(1 + \cos x)} dx$



Watch Video Solution

$$376. \int \frac{dx}{\sin x(3 + 2 \cos x)}$$



Watch Video Solution

$$377. \text{ Evaluate: } \int \frac{\sin x}{\sin 4x} dx$$



Watch Video Solution

$$378. \int \frac{(x - 1)(x - 2)(x - 3)}{(x + 1)(x + 2)(x + 3)} dx$$



Watch Video Solution

379. Find $\int \frac{x^2}{(x^2 + 1)(x^2 + 4)} dx$



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380. $\int \frac{\cos x}{1 + 9 \sin^2 x} dx$



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381. $\int \frac{\sec^2 x}{\sqrt{\tan^2 x + 4}} dx$



Watch Video Solution

382. Find $\int \frac{\sin 2x \cos 2x dx}{\sqrt{9 - \cos^4(2x)}}$



Watch Video Solution

383. $\int \frac{dx}{\sin^4 x + \cos^4 x}$



Watch Video Solution

384. $\int \frac{\cos x}{\sin x + \cos x} dx$



Watch Video Solution

$$385. \int \frac{\cos x}{2 \sin x + 3 \cos x} dx$$



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$$386. \int \frac{dx}{1 + \tan x}$$



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$$387. \int \frac{dx}{1 + \cot x}$$



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$$388. \int \frac{\sin x + 2 \cos x}{2 \sin x + \cos x} dx$$



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$$389. \int \frac{\sin x}{3 \sin x + 5 \cos x} dx$$



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$$390. \int \frac{dx}{1 + \cos^2 x}$$



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$$391. \int \frac{dx}{4 \sin^2 x + 9 \cos^2 x}$$



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$$392. \int \frac{dx}{(a \sin x + b \cos x)^2}$$



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$$393. \int \frac{dx}{5 + 4 \sin x}$$



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