



MATHS

BOOKS - MODERN PUBLICATION

INTEGRALS

EXAMPLE

1. Write the antiderivative of $\left(3\sqrt{x} + \frac{1}{\sqrt{x}}\right)$

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

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3. Find the following integrals: $\int \frac{1 - \sin x}{\cos^2 x} dx$

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

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

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

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7. Evaluate the following integrals: $\int \frac{\sin^6 x + \cos^6 x}{\sin^2 x \cos^2 x} dx$



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8. Evaluate : $\int \sqrt{1 + \cos 2x} dx$.



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9. Evaluate : $\int \sqrt{1 + \sin 2x} dx$



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10. show that : $f(x) = \tan x - \cot x - x + \frac{\pi}{4} + 1$ if :
 $f'(x) = \sec^2 x + \operatorname{cosec}^2 x - 1$ and $f(x) = 1$, when $x = \frac{\pi}{4}$.



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11. prove $\int (ax + b)^n dx = \frac{(ax + b)^{n+1}}{(n + 1)a} + c, a \neq 0, n \neq -1$



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12. prove $\int \frac{1}{ax + b} dx = \frac{\log(ax + b)}{a} + c, a \neq 0$

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13. $\int \sin(ax + b) dx = -\frac{\cos(ax + b)}{a} + c, a \neq 0$

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14. Prove $\int \cos(ax + b) dx = \frac{\sin(ax + b)}{a} + c, a \neq 0$

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15. $\int \sec^2(ax + b) = \frac{\tan(ax + b)}{a} + c, a \neq 0$

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$$16. \int \cos ec^2(ax + b)dx = -\frac{\cot(ax + b)}{a} + c, a \neq 0$$

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$$17. \int \sec(ax + b)\tan(ax + b)dx = \frac{\sec(ax + b)}{a} + c, a \neq 0$$

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$$18. \int \cos ec(ax + b)\cot(ax + b)dx = -\frac{\cos ec(ax + b)}{a} + c, a \neq 0$$

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$$19. \text{ Prove } \int e^{ax+b}dx = \frac{e^{ax+b}}{a} + c, a \neq 0. \text{ Etc}$$

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20. Prove $\int \tan x dx = -\log|\cos x| + c = \log|\sec x|$, $x \neq$ an odd multiple of $\frac{\pi}{2}$

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21. Prove $\int \cot x dx = \log|\sin x| + c$, $x \neq$ an even multiple of $\frac{\pi}{2}$

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22. Prove $\int \sec x dx = \log|\sec x + \tan x| + c$, $x \neq$ an odd multiple of $\frac{\pi}{2}$

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23. Prove $\int \cos ecx dx = \log|\cos ecx - \cot x| + c$, $x \neq$ an even multiple of $\frac{\pi}{2}$

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24. Find the following integrals : $\int(ax + b)^3 dx$

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25. Evaluate: $\int \frac{(\log x)^2}{x} dx$

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26. Evaluate: $\int \frac{2x + 9}{x^2 + 9x + 30} dx$

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

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



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



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



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31. Integrate: $\int \cos^3 x \sin^4 x dx.$



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



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33. Evaluate: $\int \frac{1}{1 + \tan x} dx$

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34. Evaluate: $\int \frac{\sin(x - a)}{\sin x} dx$

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35. Evaluate: $\int \frac{\sin(x - a)}{\sin(x + a)} dx$

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36. Integrate the following functions : $\int \frac{1}{\sin(x - a)\sin(x - b)} dx$

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37. Integrate : $\int \frac{\tan^5 \sqrt{x} \sec^3 \sqrt{x}}{\sqrt{x}} dx$

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

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

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40. Evaluate: $\int \frac{1}{a \sin x + b \cos x} dx$

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41. Evaluate $\int \sin^2 x dx$

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42. Find $\int \cos mx dx$

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

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44. Integrate the following: $\int \sin 3x dx$

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45. Integrate the following: $\int \cos^2 x dx$



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46. Evaluate: $\int \cos 3x dx$



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47. $\int \frac{1}{\sqrt{a^2 - x^2}} dx = \sin^{-1}\left(\frac{x}{a}\right) + C$



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48. prove $\int \frac{1}{a^2 + x^2} dx = \frac{1}{a} \tan^{-1}\left(\frac{x}{a}\right) + C$



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49. $\int \frac{1}{\sqrt{a^2 + x^2}} dx = \log|x + \sqrt{a^2 + x^2}| + c$



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50. prove $\int \frac{dx}{\sqrt{x^2 - a^2}} = \log|x + \sqrt{x^2 - a^2}| + c$

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51. prove $\int \sqrt{a^2 - x^2} dx = \frac{x}{2} \sqrt{a^2 - x^2} + \frac{a^2}{2} \frac{\sin^{-1}(x)}{a} + c$

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52. $\int \sqrt{a^2 + x^2} dx = \frac{x}{2} \sqrt{a^2 + x^2} + \frac{a^2}{2} \log|x + \sqrt{a^2 + x^2}| + c$

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53. $\int \sqrt{x^2 - a^2} dx = \frac{x}{2} \sqrt{x^2 - a^2} - \frac{a^2}{2} \log|x + \sqrt{x^2 - a^2}| + c$

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54. Write the value of $\int \frac{dx}{x^2 + 16}$

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55. Integrate the following w.r.t. x: $\frac{x^2 - 3x + 1}{\sqrt{1 - x^2}}$

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56. Find: $\int \frac{\sqrt{x}}{\sqrt{a^3 - x^3}}$

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57. Integrate: $\int \frac{x^3}{\sqrt{1 - x^8}} dx$

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

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

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60. Evaluate: $\int \frac{\cos 2x}{1 + 4 \sin^2 x \cos^2 x} dx$

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

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62. Integrate: $\int \frac{dx}{2 + \cos x}$

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

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64. Evaluate: $\int x^2 e^{3x} dx$

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65. Evaluate: $\int \cos \sqrt{x} dx$

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



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



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



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



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



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71. Integrate: $\int \sin^{-1} \sqrt{\frac{x}{a+x}} dx$

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

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73. Evaluate $\int e^x \sin x dx$

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74. $\int e^{ax} \cdot \cos(bx + c) dx$

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75. Find: $\int e^x \sin x dx$

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76. Evaluate $\int \sin(\log x) dx$

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

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78. Given : $\int e^x (\tan x + 1) \sec x dx = e^x f(x) + c$, write $f(x)$ satisfying the above.

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

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80. Find: $\int \frac{2x - 5}{(2x - 3)^3} e^{2x} dx$

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81. Evaluate the following integrals: $\int e^x \left(\frac{x^2 + 1}{(x + 1)^2} \right)$

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

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83. Evaluate : $\int \frac{1}{x^2 - 16} dx$

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

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

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

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87. Evaluate : $\int \frac{x^3 + x}{x^4 - 9} dx$



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88. Evaluate: $\int \frac{\sin x}{\sin 3x} dx$



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



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90. Evaluate: $\int \frac{(x-1)(x-2)(x-3)}{(x-4)(x-5)(x-6)} dx$



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



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

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

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94. Evaluate: $\int \frac{x^2}{(x^2 + 4)(x^2 + 9)} dx$

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95. Evaluate $\int \frac{x^2}{x^4 + x^2 - 2} dx$

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

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

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98. Evaluate the following integrals

$$\int \frac{x + 2}{x^2 + 2x + 2} dx$$

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99. Evaluate the following integrals:

$$\int \frac{2x + 5}{\sqrt{7 - 6x - x^2}} dx$$

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100. Evaluate: $\int \sqrt{x^2 + 4x + 8} dx$

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

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

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

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



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105. Evaluate: $\int \frac{\sec^2 x}{\sqrt{\tan^2 x + 2 \tan x + 5}} dx.$



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



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



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108. Evaluate the following integrals: $\int \frac{dx}{(x^2-1)\sqrt{x-1}}$



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

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110. Evaluate : $\int \frac{x^2 - 1}{x^4 + kx^2 + 1} dx$, where k is any constant.

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111. Evaluate : $\int \frac{dx}{a + b \cos x}$

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112. Evaluate : $\int \frac{dx}{a + b \sin x}$

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113. Evaluate : $\int \frac{dx}{a + b \cos x + c \sin x}$ where a, b and c are positive constants.

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114. Evaluate : $\int (a \cos x + b \sin x + c) dx$

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

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

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117. Evaluate : $\int \frac{1}{x^4 - 5x^2 + 16} dx$

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118. Evaluate $\int \frac{dx}{(5 + 4 \cos x)^2}$.

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

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

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121. Evaluate : $\int \frac{\cos x + 2 \sin x + 3}{4 \cos x + 5 \sin x + 6} dx$



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122. Evaluate : $\int \sqrt{\tan x} dx$



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123. Evaluate : $\int (\sqrt{\tan x} + \sqrt{\cot x}) dx.$



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



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125. Evaluate $\int_a^b x dx$ as a limit of sum.



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126. Evaluate $\int_0^2 (x + 2) dx$ as the limit of a sum.

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127. Evaluate $\int_0^2 (x^2 + 2) dx$ as the limit of sum.

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128. Evaluate : $\int_1^4 (3x^2 + 2x) dx$ as the limit of sum.

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129. Evaluate $\int_0^2 (x^2 + x + 1) dx$ as the limit of a sum.

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130. Evaluate, $\int_0^2 e^x dx$ as the limit of sums.

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131. Evaluate $\int_{-1}^2 (e^{3x} + 7x - 5) dx$ as a limit of sums.

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132. Evaluate $\int_a^b x dx$ as a limit of sum.

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133. Find the value of: $\int_0^1 x^2 dx$

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134. Evaluate the following integrals: $\int_0^2 \sin x dx$

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135. Evaluate: $\int_3^{e^x} \frac{dx}{x}$

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136. $\int e^x (\cos x - \sin x) dx =$

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137. Evaluate: $\int_2^4 \frac{x}{x^2 + 1} dx$

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138. Evaluate: $\int_0^3 \frac{dx}{9+x^2}$

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139. Evaluate: $\int_2^3 \frac{1}{x} dx$

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140. Evaluate: $\int_0^2 (4-x^2) dx$

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141. Evaluate: $\int_0^a \frac{1}{4+x^2} dx = \frac{\pi}{8}$, find the value of 'a'.

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142. Evaluate the following integrals:

$$\int_2^3 x^2 dx$$



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143. Evaluate the following integrals:

$$\int_1^3 \frac{1}{(x+1)(x+2)} dx$$



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144. Evaluate the following: $\int_0^{\pi} \cos x dx$



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145. Evaluate the following integrals:

$$\int_0^{\pi/4} \sec x \cdot \left(\sqrt{\frac{1 - \sin x}{1 + \sin x}} \right) dx$$

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146. Show that $\int_0^{\pi/2} \sin^4 x dx = \frac{3\pi}{16}$

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147. Evaluate: $\int_0^{\pi/2} \frac{x + \sin x}{1 + \cos x} dx$

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148. If $\int_a^h x^3 dx = 0$ and if $\int_0^h x^2 dx = \frac{2}{3}$, find the values of 'a' and 'b'.

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149. If $\int_0^a \sqrt{x} dx = 2a \int_0^{\pi/2} \sin^3 x dx$. Find $\int_a^{a+1} x dx$

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150. The marginal cost of a manufacturer is given by:

$$MC = \frac{250x}{\sqrt{x^2 + 40}} \text{ where 'x' is the number of units (in thousands)}$$

prodced. If 'x' increases from 3,000 to 9,000 units, find the total increase in cost.

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151. Evaluate: $\int_{-1}^1 5x^4 \sqrt{x^5 + 1} dx$

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152. Evaluate: $\int_0^{\pi} \frac{dx}{5 + 4 \cos x}$

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153. Evaluate:

$$\int_0^{\pi/2} \frac{dx}{2 \cos x + 4 \sin x}$$

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154. Integrate: $\int \sin^{-1} \sqrt{\frac{x}{a+x}} dx$

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155. Evaluate: $\int_0^{\frac{1}{\sqrt{2}}} \frac{\sin^{-1} x}{(1-x^2)^{3/2}} dx$

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156. Evaluate: $\int_0^{\pi} e^{2x} \cdot \sin\left(\frac{\pi}{4} + x\right) dx$

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157. Evaluate: $\int_0^1 \sin^{-1}\left(x\sqrt{1-x} - \sqrt{x}\sqrt{1-x^2}\right) dx$

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158. If $f(x) = \int_0^x t \sin t dt$, then write the value of $f'(x)$.

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159. Prove that: $\int_0^{2a} f(x) dx = \int_0^{2a} f(2a - x) dx$

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160. Using properties of definite integral prove that

$$\int_0^2 x\sqrt{2-x} dx = \frac{16\sqrt{2}}{15}$$

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161. Evaluate:

$$\int_{-\pi}^{\pi} (\cos ax - \sin bx)^2 dx$$

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162. Evaluate:
$$\int_0^{\pi/2} \frac{\sin x}{\sin x + \cos x} dx$$

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163. Evaluate:
$$\int_{-2}^2 \frac{x^2}{1+5^x} dx$$

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164. Evaluate: $\int_{\pi/6}^{\pi/3} \frac{dx}{1 + \tan x}$

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165. Evaluate: $\int_0^{\pi/2} \frac{x}{\sin x + \cos x} dx$

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166. Evaluate: $\int_0^{\pi/2} \frac{\cos^2 x}{\cos^2 x + 4 \sin^2 x} dx$

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167. Evaluate: $\int_0^{\pi} \frac{x \sin x}{1 + \sin x} dx$



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168. Evaluate: $\int_0^{\pi} \frac{x^2 \cos x}{(1 + \sin x)^2} dx$



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169. Evaluate: $\int_0^{\pi} \frac{x \sin x}{1 + \cos^2 x} dx$



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170. Evaluate : $\int_0^{\pi} \frac{x \sin x}{1 + \cos^2 x} dx.$



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171. Evaluate: $\int_0^{2\pi} \frac{1}{1 + e^{\sin x}} dx$



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172. Evaluate: $\int_0^{\pi/2} \log \sin x dx$



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173. Evaluate: $\int_0^{\pi/2} \log \cos x dx$



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174. Using property of definite integrals, prove that :

$$\int_0^{\pi/2} \sin 2x \log \tan x dx = 0$$



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175. Evaluate: $\int_0^{\pi} \cos 2x \log \sin x dx$

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176. Evaluate: $\int_0^1 \cot^{-1}(1 - x + x^2) dx$

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177. Evaluate: $\int_{-1}^{1/2} |x \cos(\pi x)| dx$

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178. Evaluate: $\int_0^1 |3x - 1| dx$

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179. Evaluate: $\int_{-1}^2 |x^3 - x| dx$

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180. Evaluate: $\int_0^2 |x^2 + 2x - 3| dx$

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181. Evaluate: $\int_{0.5}^{3.5} [x] dx$

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182. Evaluate: $\int_0^4 (|x| + |x - 2| + |x - 4|) dx$

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183. Using properties of integrals, evaluate:

$$\int_{-\pi/2}^{\pi/2} f(x)dx, \text{ where } f(x) = \sin|x| + \cos|x|$$

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184. Evaluate: $\int_{-2}^2 (f(x))dx$

where $f(x) = \{(2x - 1, -2 \leq x \leq 1), (3x - 2, 1 \leq x \leq 2)\}$

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185. Find an anti derivative (or integral) of the following functions by the method of inspection: $\sin(2x)$

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186. Find an anti derivative (or integral) of the following functions by the method of inspection : $\cos(3x)$

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

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188. Find an anti derivative (or integral) of the following functions by the method of inspection : $(ax + b)^2$

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189. Find an anti derivative (or integral) of the following functions by the method of inspection : $\sin 2x - 4e^{3x}$





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190. Find the following integral: $\int(4e^{3x} + 1) dx$



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191. Find the following integrals

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



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192. Find the following integral : $\int(ax^2 + bx + c) dx$



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193. Find the following integral : $\int(2x^2 + e^x) dx$



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194. Find the following integral : $\int \left(\left(\sqrt{x} - \left(\frac{1}{\sqrt{x}} \right) \right)^2 \right) dx$

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195. Find the following integral : $\int \frac{x^3 + 5x^2 - 4}{x^2} dx$

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196. Evaluate the following integrals : $\int (1 - x)\sqrt{x} dx$

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197. Find the following integral : $\int \left(\frac{x^3 + 3x + 4}{\sqrt{x}} \right) dx$

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198. Find the following integral : $\int(\sqrt{x}(3x^2 + 2x + 3)) dx$

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199. Find the following integral : $\int\left(\frac{x^3 - x^2 + x - 1}{x - 1}\right) dx$

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200. Find the following integral : $\int(2x - 3 \cos x + e^x) dx$

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

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202. Find the following integral : $\int \sec x(\sec x + \tan x) dx$



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203. Find the following integrals: $\int \frac{1 - \sin x}{\cos^2 x} dx$



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204. Find the following integral : $\int \frac{\sec^2(x)}{\cos e c^2(x)} dx$



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205. Integrate the function

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



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206. Integrate the function: $\frac{(1 + \log x)^2}{x}$



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207. Integrate the function: $\frac{1}{x + x \log x}$

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208. Integrate the function

$\sin x \sin(\cos x)$

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209. Integrate the function: $\sin(ax + b)\cos(ax + b)$

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210. Integrate the function: $\sqrt{ax + b}$

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211. Integrate the function: $x\sqrt{x+2}$

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212. Integrate the function: $x\sqrt{1+2x^2}$

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213. Integrate the function: $(4x+2)\sqrt{x^2+x+1}$

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214. Integrate the function: $\frac{1}{x-\sqrt{x}}$

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215. Integrate the function: $\frac{x}{\sqrt{x+4}}, x > 0$



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216. Integrate the function: $(x^3 - 1)^{\frac{1}{3}} x^5$



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217. Integrate the function

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



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218. Integrate the function

$$\frac{1}{x(\log x)^m}, x > 0, m \neq 1$$



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219. Integrate the function

$$\frac{x}{9 - 4x^2}$$

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220. Integrate the function: e^{2x+3}

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221. Integrate the function: $\frac{x}{e^{x^2}}$

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222. Integrate the function: $\frac{e^{\tan^{-1} x}}{1 + x^2}$

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223. Integrate the function: $\frac{e^{2x} - 1}{e^{2x} + 1}$

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224. Integrate the function: $\frac{e^{2x} - e^{-2x}}{e^{2x} + e^{-2x}}$

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225. Integrate the function: $\tan^2(2x - 3)$

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226. Integrate the function: $\sec^2(7 - 4x)$

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227. Integrate the function: $\frac{\sin^{-1} x}{\sqrt{1 - x^2}}$



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228. Integrate the function: $\frac{2 \cos x - 3 \sin x}{6 \cos x + 4 \sin x}$



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229. Integrate the function: $\frac{1}{\cos^2 x (1 - \tan x)^2}$



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230. Integrate the function: $\frac{\cos \sqrt{x}}{\sqrt{x}}$



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231. Integrate the function: $\sqrt{\sin 2x} \cos 2x$



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232. Integrate the function: $\frac{\cos x}{\sqrt{1 + \sin x}}$

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233. Integrate the function: $\cot x \log \sin x$

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234. Integrate the function: $\frac{\sin x}{1 + \cos x}$

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235. Integrate the function: $\frac{\sin x}{(1 + \cos x)^2}$

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236. Integrate the function: $\frac{1}{1 + \cot x}$



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237. Integrate the function: $\frac{1}{1 - \tan x}$



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238. Integrate the function

$$\frac{\sqrt{\tan x}}{\sin x \cos x}$$



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239. Integrate the function: $\frac{(1 + \log x)^2}{x}$



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240. Integrate the function: $(x + 1) \frac{(x + \log x)^2}{x}$



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241. Integrate the function

$$\frac{x^3 \sin(\tan^{-1} x^4)}{1 + x^8}$$

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242. Find the integrals of the function: $\sin^2(2x + 5)$

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243. Find the integrals of the functions

$$\sin 3x \cos 4x$$

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244. Find the integrals of the function: $\sin^3(2x + 1)$

 [Watch Video Solution](#)

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245. Find the integrals of the function: $\frac{\sin^3 x + \cos^3 x}{\sin^2 x \cos^2 x}$

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246. Find the following integrals : $\int \sin x \sin 2x \sin 3x dx$

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247. Find the intergrals of the funtions

$\sin 4x \sin 8x$

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248. Find the following integrals : $\int \cos 2x \cos 4x \cos 6x dx$

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249. Find the integrals of the function: $\frac{1 - \cos x}{1 + \cos x}$

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250. Find the integrals of the function: $\frac{\cos x}{1 + \cos x}$

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251. Find the integrals of the function: $\sin^4 x$

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252. Find the integrals of the function: $\frac{\sin^2 x}{1 + \cos x}$

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253. Find the integrals of the function: $\frac{\cos 2x - \cos 2\alpha}{\cos x - \cos \alpha}$



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254. Find the integrals of the function: $\frac{\cos x - \sin x}{1 + \sin 2x}$



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255. Find the integrals of the function: $\tan^3(2x)\sec 2x$



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256. Find the integrals of the function: $\tan^4 x$



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257. Find the integrals of the function: $\frac{\sin^3 x + \cos^3 x}{\sin^2 x \cos^2 x}$



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258. Find the integrals of the function: $\frac{\cos 2x + 2 \sin^2 x}{\cos^2 x}$

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259. Find the integrals of the function: $\frac{1}{\sin x} \cdot \cos^3 x$

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260. Find the integrals of the function: $\frac{\cos 2x}{(\cos x + \sin x)^2}$

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261. Find the integrals of the function: $\sin^{-1}(\cos x)$

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262. Integrate the functions: $\frac{3x^2}{x^6 + 1}$



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263. Integrate the functions :

$$\frac{1}{\sqrt{1+4x^2}}$$



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264. Integrate the following functions : $\int \frac{dx}{\sqrt{(2-x)^2+1}}$



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265. $\int \frac{dx}{\sqrt{9-25x^2}}$



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266. Integrate the functions: $3\frac{x}{1+2x^4}$



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267. Integrate the functions: $\frac{x^2}{1 - x^6}$

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268. Integrate the functions: $\frac{x - 1}{\sqrt{x^2 - 1}}$

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269. Integrate the functions: $\frac{\sec^2 x}{\sqrt{\tan^2 x + 4}}$

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270. Integrate the functions: $\frac{1}{\sqrt{x^2 + 2x + 2}}$

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271. Integrate the functions: $\frac{1}{9x^2 + 6x + 5}$

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

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273. Integrate the functions: $\frac{1}{\sqrt{(x - 1)(x - 2)}}$

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

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275. Integrate the functions :

$$\frac{1}{\sqrt{(x-a)(x-b)}}$$

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276. Integrate the functions: $\frac{4x + 1}{\sqrt{2x^2 + x - 3}}$

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277. Integrate the functions: $\frac{x + 2}{\sqrt{x^2 - 1}}$

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278. Integrate the functions: $\frac{5x - 2}{1 + 2x + 3x^2}$

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279. Integrate the functions: $\frac{6x + 7}{\sqrt{(x - 5)(x - 4)}}$

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280. Integrate the functions: $\frac{x + 2}{\sqrt{4x - x^2}}$

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281. Integrate the functions: $\frac{x + 2}{\sqrt{x^2 + 2x + 3}}$

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282. Integrate the functions: $\frac{5x + 3}{\sqrt{x^2 + 4x + 10}}$

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283. Integrate the rational function: $\frac{x}{(x + 1)(x + 2)}$

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284. Integrate the rational function: $\frac{1}{x^2 - 9}$

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285. Integrate the rational function: $\frac{3x - 1}{(x - 1)(x - 2)(x - 3)}$

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286. Integrate the rational function: $\frac{x}{(x - 1)(x - 2)(x - 3)}$

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287. Integrate the rational function: $2\frac{x}{x^2 + 3x + 2}$



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288. Integrate the rational function: $\frac{1 - x^2}{x(1 - 2x)}$



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289. Integrate the rational function: $\frac{x}{(x^2 + 1)(x - 1)}$



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290. Integrate the rational function: $\frac{x}{(x - 1)^2(x + 2)}$



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291. Integrate the rational function: $\frac{3x + 5}{x^3 - x^2 - x + 1}$



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292. Integrate the rational function: $\frac{x^3 + x + 1}{x^2 - 1}$

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293. Integrate the rational function: $\frac{2}{(1 - x)(1 + x^2)}$

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294. Integrate the rational function: $\frac{3x - 1}{(x + 2)^2}$

 [Watch Video Solution](#)

295. Integrate the rational function: $\frac{1}{x^4 - 1}$

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296. Integrate the rational function: $\frac{2x - 3}{(x^2 - 1)(2x + 3)}$



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297. Integrate the rational function: $5 \frac{x}{(x+1)(x^2-4)}$



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298. Integrate the rational function: $\frac{1}{x(x^n+1)}$



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299. Integrate the rational function: $\frac{\cos x}{(1-\sin x)(2-\sin x)}$



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300. Integrate the rational function: $\frac{(x^2+1)(x^2+2)}{(x^2+3)(x^2+4)}$



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301. Integrate the functions: $3\frac{x}{1+2x^4}$

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302. Integrate the rational function: $\frac{1}{x(x^4-1)}$

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303. Integrate the rational function: $\frac{1}{e^x-1}$

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304. Integrate the function : $x \sin x$

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305. Integrate the function : $x \sin^{-1} x$



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306. Integrate the function : $x \sin x$



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307. Integrate the function : $x \log x$



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308. Integrate the functions :

$x \log 2x$



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309. Integrate the function : $x \sin x$



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310. Integrate the function : $x \sin^{-1} x$

 [Watch Video Solution](#)

311. Integrate the function : $x \tan^{-1} x$

 [Watch Video Solution](#)

312. Integrate the function: $\frac{1}{x - x^3}$

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313. Integrate the function : $(\sin^{-1} x)^2$

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314. Integrate the function: $\frac{x \cos^{-1} x}{\sqrt{1-x^2}}$

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315. Integrate the function: $x \sec^2 x$

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316. Integrate the function : $x \tan^{-1} x$

 [Watch Video Solution](#)

317. Integrate the function: $x(\log x)^2$

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318. Integrate the function: $(x^2 + 1)\log x$



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319. Integrate the function: $e^x(\sin x + \cos x)$



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320. Integrate the function: $\frac{xe^x}{(1+x)^2}$



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321. Integrate the function: $e^x \left(\frac{1 + \sin x}{1 + \cos x} \right)$



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322. Integrate the function: $e^x \left(\frac{1}{x} - \frac{1}{x^2} \right)$



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323. Integrate the function: $\frac{(x - 3)e^x}{(x - 1)^3}$

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324. Integrate the function: $e^{2x} \sin x$

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325. Integrate the function: $\sin^{-1}\left(\frac{2x}{1 + x^2}\right)$

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326. Integrate the function: $\sqrt{4 - x^2}$

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327. Integrate the function: $\sqrt{1 - 4x^2}$



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328. Integrate the function: $\sqrt{x^2 + 4x + 6}$



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329. Integrate the function: $\sqrt{x^2 + 4x + 6}$



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330. Integrate the function: $\sqrt{x^2 + 4x - 5}$



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331. Integrate the functions :

$$\sqrt{1 + 3x - x^2}$$



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332. Integrate the function: $\sqrt{x^2 + 3x}$

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333. Integrate the function: $\sqrt{1 + \frac{x^2}{9}}$

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334. Integrate the functions : $\int_a^b x dx$

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335. Evaluate the following as the limit of a sum:

$$\int_0^5 (x + 1) dx$$

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336. Evaluate the following integrals:

$$\int_2^3 x^2 dx$$

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337. Integrate the function: $\sqrt{4 - x^2}$

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338. Integrate the functions : $\int_{-1}^1 e^x dx$

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339. Integrate the functions : $\int_0^4 (x + e^{2x}) dx$



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340. Evaluate the following integrals: $\int_{-1}^1 (x + 1)dx$

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341. Evaluate the following integrals:

$$\int_2^3 \frac{1}{x} dx$$

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342. Evaluate the definite integrals :

$$\int_1^2 (4x^3 - 5x^2 + 6x + 9) dx$$

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343. Evaluate the following integrals.

$$\int_0^{\pi/2} \cos 2x dx$$



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344. Evaluate the definite integrals :

$$\int_4^5 e^x dx$$



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345. Evaluate the following integrals: $\int_0^{\pi/4} \tan x dx$



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346. Evaluate the definite integrals :

$$\int_0^{\frac{\pi}{4}} \sin 2x dx$$



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347. Evaluate the following integrals:

$$\int_{\pi/6}^{\pi/4} \cos ex dx$$



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348. Evaluate the following integrals:

$$\int_0^1 \frac{dx}{\sqrt{1-x^2}}$$



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349. Evaluate the following: $\int_0^1 \frac{dx}{1+x^2}$

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350. Evaluate the definite integrals :

$$\int_2^3 \frac{dx}{x^2 + 1}$$

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351. Evaluate the definite integral: $\int_0^{\frac{\pi}{2}} (\cos^2 x) dx$

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352. Evaluate the following integrals: $\int_0^1 \frac{x}{x^2 + 1} dx$

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353. Evaluate the definite integral: $\int_0^1 \frac{2x + 3}{5x^2 + 1} dx$

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354. Evaluate the following: $\int_1^2 \frac{5x^2}{x^2 + 4x + 3} dx$

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355. Evaluate the definite integrals :

$$\int_0^{\pi/4} (2 \sec^2 x + x^3 + 2) dx$$

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356. Evaluate the definite integrals :

$$\int_0^1 x^2 e^{x^3} dx$$



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357. Evaluate the definite integrals :

$$\int_0^{\pi} \left(\sin^2\left(\frac{x}{2}\right) - \cos^2\left(\frac{x}{2}\right) \right) dx$$



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358. Evaluate the definite integrals :

$$\int_0^2 \frac{6x + 3}{x^2 + 4} dx$$



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359. Evaluate the definite integral: $\int_0^1 (xe^{x^2}) dx$

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360. Evaluate the following integrals: $\int_0^1 \frac{x}{x^2 + 1} dx$

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361. Evaluate the definite integrals :

$$\int_0^{\frac{\pi}{2}} (\sqrt{\sin \phi} \cos^5 \phi) d\phi$$

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362. Evaluate the definite integrals :

$$\int_0^1 \sin^{-1} \left(\frac{2x}{1+x^2} \right) dx$$

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363. Evaluate the definite integrals :

$$\int_0^2 x\sqrt{x+2}. \text{ (Put } x+2 = t^2)$$

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364. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin x}{1 + \cos^2 x} dx$$

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365. Evaluate the definite integrals :

$$\int_0^2 \frac{dx}{x+4-x^2}$$

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366. Evaluate the definite integrals :

$$\int_{-1}^1 \frac{1}{x^2 + 2x + 5} dx$$



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367. Evaluate the following integrals.

$$\int_1^2 \left(\frac{1}{x} - \frac{1}{2x^2} \right) e^{2x} dx$$



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368. By using the properties of definite integrals, evaluate the integral:

$$\int_0^{\frac{\pi}{2}} \cos^2 x dx$$



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369. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx$$

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370. By using the properties of definite integrals, evaluate the integrals:

$$\int_0^{\pi/2} \frac{\sqrt{\cos x}}{\sqrt{\cos x} + \sqrt{\sin x}} dx$$

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371. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin^{3/2} x}{\sin^{3/2} x + \cos^{3/2} x} dx$$

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372. By using the properties of definite integrals, evaluate the integrals:

$$\int_0^{\frac{\pi}{2}} \frac{\cos^3 x}{\sin^3 x + \cos^3 x} dx$$

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373. By using the properties of definite integrals, evaluate the integral:

$$\int_{-5}^5 |x + 2| dx$$

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374. By using the properties of definite integrals, evaluate the integral:

$$\int_2^8 |x - 5| dx$$

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375. By using the properties of definite integrals, evaluate the integral:

$$\int_0^1 x(1-x)^n dx$$

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376. By using the properties of definite integrals, evaluate the integral:

$$\int_0^{\frac{\pi}{4}} \log(1 + \tan x) dx$$

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377. By using the properties of definite integrals, evaluate the integral:

$$\int_0^2 x\sqrt{2-x} dx$$

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378. By using the properties of definite integrals, evaluate the integral:

$$\int_0^{\frac{\pi}{2}} (2 \log \sin x - \log \sin 2x) dx$$



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379. By using the properties of definite integrals, evaluate the integrals:

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin^2 x dx$$



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380. By using the properties of definite integrals, evaluate the integral:

$$\int_0^{\pi} (x) \frac{dx}{1 + \sin x}$$



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381. By using the properties of definite integrals, evaluate the integrals:

$$\int_0^{2\pi} \cos^5 x dx$$



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382. By using the properties of definite integrals, evaluate the integral:

$$\int_0^{\frac{\pi}{2}} \frac{\sin x - \cos x}{1 + \sin x \cos x} dx$$



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383. By using the properties of definite integrals, evaluate the integral:

$$\int_0^{\pi} (\log(1 + \cos x)) dx$$



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384. By using the properties of definite integrals, evaluate the integral:

$$\int_0^a \frac{\sqrt{x}}{\sqrt{x} + \sqrt{a-x}} dx$$



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385. By using the properties of definite integrals, evaluate the integral:

$$\int_0^4 |x - 1| dx$$



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386. Show that $\int_0^a f(x)g(x)dx = 2\int_0^a f(x)dx$, if f and g are defined as $f(x) = f(a - x)$ and $g(x) + g(a - x) = 4$



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387. Integrate the functions:

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



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388. Integrate the function: $\frac{1}{\sqrt{x+a} + \sqrt{x+b}}$



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389. Integrate the function: $\frac{1}{x\sqrt{ax - x^2}}$



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390. Integrate the function: $\frac{1}{x^2(x^4 + 1)^{\frac{3}{4}}}$



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391. Integrate the function: $\frac{1}{x^{\frac{1}{2}} + x^{\frac{1}{3}}}$



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392. Integrate the function: $5 \frac{x}{(x + 1)(x^2 + 9)}$



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393. Integrate the function: $\frac{\sin x}{\sin(x - a)}$



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394. Integrate the function: $\frac{e^{5 \log x} - e^{4 \log x}}{e^{3 \log x} - e^{2 \log x}}$

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395. Integrate the function: $\frac{\cos x}{\sqrt{4 - \sin^2 x}}$

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396. Integrate the function: $\frac{\sin^8 x - \cos^8 x}{1 - 2 \sin^2 x \cos^2 x}$

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397. Integrate the function: $\frac{1}{\cos(x + a)\cos(x + b)}$

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398. $\frac{x^3}{\sqrt{1-x^8}}$ ਫਲਨ ਦਾ ਇਨਟੈਗਰਲ ਕਰੋ।

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399. Integrate the function: $\frac{e^x}{(1+e^x)(2+e^x)}$

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400. Integrate the function: $\frac{1}{(x^2+1)(x^2+4)}$

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401. Integrate the function: $\cos^3 x e^{\log \sin x}$

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402. Integrate the function: $e^{3 \log x} (x^4 + 1)^{-1}$



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403. Integrate the function: $f'(ax + b)[f(ax + b)]^n$



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404. Integrate the function: $\frac{1}{\sqrt{\sin^3 x \sin(x + a)}}$



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405. Integrate the function: $\frac{\sin^{-1} \sqrt{x} - \cos^{-1} \sqrt{x}}{\sin^{-1} \sqrt{x} + \cos^{-1} \sqrt{x}}, (x \in [0, 1])$



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406. Integrate the function: $\sqrt{\frac{1 - \sqrt{x}}{1 + \sqrt{x}}}$



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407. Integrate the function: $\frac{2 + \sin 2x}{1 + \cos 2x} e^x$

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408. Integrate the function: $\frac{x^2 + x + 1}{(x + 1)^2(x + 2)}$

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409. Integrate the function: $\tan^{-1} \sqrt{\frac{1-x}{1+x}}$

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410. Integrate the function: $\frac{\sqrt{x^2 + 1} [\log(x^2 + 1) - 2 \log x]}{x^4}$

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411. Evaluate $\int e^x \left(\frac{1 + \sin x}{1 + \cos x} \right) dx$

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412. Evaluate the following integrals : $\int_0^{\pi/4} \frac{\sin x \cdot \cos x}{\cos^4 x + \sin^4 x} dx$

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413. Evaluate : $\int_0^{\frac{\pi}{2}} \frac{\cos^2 x}{\cos^2 x + 4 \sin^2 x} dx$

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414. Evaluate the definite integrals :

$$\int_0^{\frac{\pi}{2}} \sin 2x \tan^{-1}(\sin x) dx$$

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415. Evaluate the definite integrals :

$$\int_0^{\pi} \frac{x \tan x}{\sec x + \tan x} dx$$

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416. Evaluate the definite integrals :

$$\int_1^4 |x - 1| + |x - 2| + |x - 3| dx$$

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417. Prove that following:

$$\int_1^3 \frac{dx}{x^2(x+1)} = \frac{2}{3} + \frac{\log(2)}{3}$$

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418. Prove that following: $\int_0^1 x e^x dx = 1$

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419. Prove that following:

$$\int_{-1}^1 x^{17} \cos^4 x dx$$

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420. Evaluate the following: $\int_0^{\pi/2} \sin^3 x dx$

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421. Prove the following: $\int_0^{\pi/4} (2 \tan^3 x) dx = 1 - \log 2$

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422. Prove that following:

$$\int_0^1 \sin^{-1} x dx = \left(\frac{\pi}{2}\right) - 1$$

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423. Evaluate $\int_0^1 e^{2-3x} dx$ as a limit of a sum.

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424. Verify the following using the concept of integration as an

antiderivative: $\int \frac{x^3}{x+1} dx = x - \frac{1}{2}x^2 + \frac{1}{3}x^3 - \log|x+1| + c$

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425. Evaluate the following integrals: $\int \frac{dx}{\sqrt{(x-\alpha)(x-\beta)}}$



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426. Evaluate: $\int \tan^8 x \sec^4 x dx$



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427. Evaluate: $\int \frac{x^3 + x}{x^4 - 9} dx$



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428. Evaluate: $\int_0^1 \frac{dx}{e^x + e^{-x}}$



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429. Evaluate: $\int_0^1 x (\tan^{-1} x)^2 dx$



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430. Find $\int \sqrt{\sec x - 1} dx$

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431. Evaluate $\int \frac{2 \sin 2x - \cos x}{6 - \cos^2 x - 4 \sin x} dx.$

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432. Evaluate: $\int \frac{x^8}{(1 - x^3)^{1/3}} Dx$

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

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



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435. Evaluate: $\int \frac{\tan \theta}{1 - \sin \theta} d\theta$



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



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437. Evaluate $\int \sin^3 x \cdot \cos^5 x dx$.



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



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439. Evaluate: $\int_0^{\pi/4} (\sqrt{\tan x}) dx$



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440. Evaluate: $\int (\sqrt{\tan x} + \sqrt{\cot x}) dx.$



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441. Evaluate: $\int_0^{\pi/2} \frac{\sin x + \cos x}{\sqrt{\sin x \cos x}} dx$



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442. Evaluate: $\int \frac{\sqrt{1 + \cos x}}{(1 - \cos x)^{5/2}} dx$



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

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

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445. Evaluate: $\int \frac{\sqrt{\cos x}}{\sin x} dx$

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

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447. Evaluate: $\int \frac{1}{\sin^4 x + \sin^2 x \cos^2 x + \cos^4 x} dx$

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448. Evaluate $\int \left(\frac{\sin^{-1} \sqrt{x} - \cos^{-1} \sqrt{x}}{\sin^{-1} \sqrt{x} + \cos^{-1} \sqrt{x}} \right) dx.$

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

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450. Evaluate: $\int_0^{\pi} \frac{e^{\cos x}}{e^{\cos x} + e^{-\cos x}} dx$

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451. Evaluate: $\int_2^5 (x^2 + x) dx$

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452. Evaluate the following integrals:

$$\int_0^2 x\sqrt{2-x} dx$$

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453. Evaluate:

$$\int_0^{\pi/2} \cos x dx$$

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454. Prove that $\int_0^{\pi/2} \log(\tan x + \cot x) dx = \pi e(\log 2)$.



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455. Prove that $\int_0^{\pi/2} \sqrt{\cos \theta} \sin^3 \theta d\theta = \frac{8}{21}$



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456. Evaluate: $\int (\sqrt{\tan x} + \sqrt{\cot x}) dx$.



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457. Evaluate: $\int_0^1 \frac{1}{\sqrt{1+x} - \sqrt{x}} dx$



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458. Evaluate the definite integrals :

$$\int_0^{\frac{\pi}{2}} \sin 2x \tan^{-1}(\sin x) dx$$

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459. Evaluate : $\int_0^{\frac{\pi}{2}} \frac{\cos^2 x}{\cos^2 x + 4 \sin^2 x} dx$

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EXERCISE

1. For the following (1 – 4) different results, Write the corresponding integration results : $\frac{d}{dx}(\sin x) = \cos x$

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2. For the following (1 – 4) different results, Write the corresponding

$$\text{integration results : } \frac{d}{dx}(\tan x) = \sec^2 x$$

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3. For the following (1 – 4) different results, Write the corresponding

$$\text{integration results : } \frac{d}{dx}(\sec x) = \sec x \tan x$$

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4. For the following (1 – 4) different results, Write the corresponding

$$\text{integration results : } \frac{d}{dx}(\operatorname{cosec} x) = -\operatorname{cosec} x \cot x$$

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5. For the following (1 – 4) different results, Write the corresponding

$$\text{integration results : } \frac{d}{dx}(\cos^{-1} x) = \frac{1}{\sqrt{1-x^2}}.$$

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6. For the following (1 – 4) different results, Write the corresponding integration results : $\frac{d}{dx}(\sin 2x) = 2 \cos 2x$

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7. For the following (5 – 7) different results, Write the corresponding integration results : $\int \frac{dx}{1+x^2} = \tan^{-1} x.$

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8. For the following (5 – 7) different results, Write the corresponding integration results : $\int e^{2x} dx = .$

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9. For the following (5 – 7) different results, Write the corresponding integration results :

$$\int \sec(3x + 4) \cot(3x + 4) dx = -\frac{1}{3} \sec(3x + 4).$$



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10. Find an anti derivative (or integral) of the following functions by the method of inspection : $\cos(3x)$



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11. Write an anti derivative for each of the following functions using the method of inspection: $3x^2 + 4x^3$



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12. Find an anti derivative (or integral) of the following functions by the method of inspection : $(ax + b)^2$

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13. Find an anti derivative (or integral) of the following functions by the method of inspection : $\sin 2x - 4e^{3x}$

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14. write down the integrals of the following (9-15) : $x^4 + x^{-5}$

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15. write down the integrals of the following (9-15) : $\frac{1}{x} \cdot x \neq 0$

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16. write down the integrals of the following (9-15) : $x + \frac{1}{x} \cdot x \neq 0$

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17. Find the following integrals: $\int \left(x^{\frac{2}{3}} + 1 \right) dx$

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18. write down the integrals of the following (9-15) : $\left(\frac{3}{\sqrt{x}} + 5x^4 \right)$.

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19. write down the integrals of the following (9-15) : $\cos 2x$

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20. Find the following integrals: $\int (\sin x + \cos x) dx$



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21. Find the following integrals: $\int \cos ecx (\cos ecx + \cot x) dx$



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22. write down the integrals of the following : 5^x



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23. Find the following integral: $\int (4e^{3x} + 1) dx$



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24. Find the following integrals: $\int \left(x^{\frac{2}{3}} + 2e^x - \left(\frac{1}{x} \right) \right) dx$



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25. write down the integrals of the following : $2x - 3 \cos x + e^x$

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26. Evaluate the following integrals : $\int (3 \cos e^{c^2} x - 5x + \sin x) dx$

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27. Evaluate the following integrals (16-17) : $\int (\sin x + \cos x + x^{\frac{5}{2}}) dx$

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28. Evaluate the following : $\int \sqrt{1 - \cos 2x} dx$.

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29. Evaluate the following : $\int \sqrt{1 - \sin 2x} dx$.



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30. Evaluate the following : $\int \tan^{-1} \sqrt{\frac{1 - \sin x}{1 + \sin x}} dx.$



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31. Evaluate the following (18-24) : $\int (\cos x + \cos ec^2 x - x^8 + 1) dx.$



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32. Evaluate the following (18-24) : $\int (e^4 + 3 \cos x - 4x^3 + 2) dx.$



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33. Evaluate the following (18-24) : $\int (e^{x \log a} + e^{a \log x} + e^{a \log a}) dx.$



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34. Evaluate the following (18-24) : $\int \frac{x - 1}{x + 1} dx$.

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35. Evaluate the following (18-24) : $\int \frac{(x - 4)^3}{x^2} dx$.

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36. Evaluate the following (18-24) : $\int \frac{1}{1 + \sin x} dx$.

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37. Evaluate the following (18-24) : $\int \frac{1}{1 - \sin x} dx$.

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38. Evaluate the following (18-24) : $\int \frac{1}{1 - \cos x} dx$



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39. Evaluate the following (18-24) : $\int \frac{1}{1 + \cos x} dx$



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40. Evaluate the following (18-24) : $\int \frac{\cos x}{1 + \cos x} dx$



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41. If $f'(x) = x - \frac{3}{x^2}$, $F(1) = \frac{11}{2}$, find $f(x)$



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42. If $f'(x) = a \sin x + b \cos x$ and $f'(0) = 4$, $f(0) = 3$, $f\left(\frac{\pi}{2}\right) = 5$,

find $f(x)$.



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43. Evaluate : $\int \tan x dx$.

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44. $\int \sec^2 x dx = \tan x$

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45. Compute the following integrals:

$$\int \sin mx dx$$

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46. Compute the following integrals:

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

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47. Evaluate the following integrals :

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

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48. Compute the following integrals:

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

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49. Compute the following integrals:

$$\int \frac{x}{e^{x^2}} dx$$

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50. Compute the following integrals:

$$\int \frac{1}{x + x \log x} dx$$

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51. Evaluate : $\int \frac{1}{x(\log x)^m} dx, m > 0$

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52. Compute the following integrals:

$$\int \cot x \log \sin x dx$$

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53. Compute the following integrals:

$$\int \frac{x}{9 - 4x^2} dx$$

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54. Compute the following integrals:

$$\int \frac{x^2 + 4x}{x^3 + 6x^2 + 5} dx$$



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55. Compute the following integrals:

$$\int \frac{\sec x}{\log(\sec x + \tan x)} dx$$



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56. Compute the following integrals:

$$\int (x^3 - 1)^{1/3} x^5 dx$$



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57. Compute the following integrals:

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



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58. Compute the following integrals:

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



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59. Find the following integrals : $\int \sec^2(7 - 4x) dx$



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60. Compute the following integrals:

$$\int \sqrt{\sin 2x} \cos 2x dx$$



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61. Compute the following integrals:

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

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62. Compute the following integrals:

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

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63. Compute the following integrals:

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

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64. Compute the following integrals:

$$\int \frac{\sin^{-1} x}{\sqrt{1-x^2}} dx$$

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65. Evaluate the following integrals: $\int \sqrt{ax + b} dx$

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66. Compute the following integrals:

$$\int \frac{6x - 8}{3x^2 - 8x + 5} dx$$

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67. Compute the following integrals:

$$\int \frac{2x + 9}{x^2 + 9x + 20} dx$$

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68. Compute the following integrals:

$$\int \frac{\cos x - \sin x}{\cos x + \sin x} dx$$



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69. Compute the following integrals:

$$\int x \sqrt{x + 2} dx$$



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70. Compute the following integrals:

$$\int \frac{x}{\sqrt{x + 4}} dx, x > 0$$



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71. Evaluate the following integrals :

$$\int \frac{1}{\sqrt{x+2} - \sqrt{x+3}} dx$$

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72. Compute the following integrals:

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

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73. Compute the following integrals:

$$\int \frac{1}{x - \sqrt{x}} dx$$

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74. Compute the following integrals:

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

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75. Compute the following integrals:

$$\int x^3 \cos x^4 dx$$

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76. Compute the following integrals:

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

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77. Compute the following integrals:

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

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78. Compute the following integrals:

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

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79. Compute the following integrals:

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

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80. Compute the following integrals:

$$\int \tan^3 x dx$$

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81. Compute the following integrals:

$$\int \tan^4 x dx$$



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82. Compute the following integrals:

$$\int \sec x \log(\sec x + \tan x) dx$$

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83. Compute the following integrals:

$$\int \frac{1}{1 - \tan x} dx$$

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84. Compute the following integrals:

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

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85. Compute the following integrals:

$$\int \frac{1}{1 - \cot x} dx$$

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86. Compute the following integrals:

$$\int \frac{1 + \tan x}{x + \log \sec x} dx$$

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87. Compute the following integrals:

$$\int \frac{1 + \cot x}{x + \log \sin x} dx$$

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88. Compute the following integrals:

$$\int \frac{\sin 2x}{\sin 4x} dx$$





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89. Compute the following integrals:

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



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90. Compute the following integrals:

$$\int \frac{dx}{x^2(x^4 + 1)^{3/4}}$$



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91. Compute the following integrals:

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



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92. Compute the following integrals:

$$\int \frac{\sqrt{\tan x}}{\sin x \cos x} dx$$

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93. Compute the following integrals:

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

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94. Compute the following integrals:

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

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95. Compute the following integrals:

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



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96. Compute the following integrals:

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



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97. Compute the following integrals:

$$\int \frac{1}{\sin(x - a)\cos(x - b)} dx$$



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98. Compute the following integrals:

$$\int \frac{1}{\cos(x - a)\cos(x - b)} dx$$



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99. Compute the following integrals:

$$\int \frac{1}{\cos(x+a)\cos(x+b)} dx$$

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100. Compute the following integrals:

$$\int \sec^4 x dx$$

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101. Compute the following integrals:

$$\int \sec^4 x dx$$

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102. Compute the following integrals:

$$\int \frac{1 - \tan x}{1 + \tan x} dx$$



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103. Evaluate the following integrals : $\int \frac{1 - \cot x}{1 + \cot x} dx$

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104. Compute the following integrals:

$$\int x e^{x^2} dx$$

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105. Compute the following integrals:

$$\int x^2 e^{x^3} \cos(2e^{x^3}) dx$$

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106. Compute the following integrals:

$$\int \frac{e^x + e^{-x}}{e^x - e^{-x}} dx \text{ or } \int \frac{e^{2x} + 1}{e^{2x} - 1} dx$$

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107. Compute the following integrals:

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

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108. Evaluate the following integrals : $\int \frac{1 - e^x}{1 + e^x} dx$

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109. Evaluate the following integrals : $\int \frac{x^{e-1} + e^{x-1}}{x^e + e^x} dx$

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110. Compute the following integrals:

$$\int e^x \sec^2(e^x) dx$$

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111. Evaluate the following integrals : $\int e^x \cos ec^2(e^x) dx$

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112. Compute the following integrals:

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

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113. Compute the following integrals:

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

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114. Compute the following integrals:

$$\int \frac{e^{\tan^{-1} x}}{1+x^2} dx$$

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115. Compute the following integrals:

$$\int \frac{e^{\sin^{-1} x}}{\sqrt{1-x^2}} dx$$

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116. Evaluate the following integrals : $\int \frac{\sec^2(2 \tan^{-1} x)}{1+x^2} dx$

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117. Compute the following integrals:

$$\int \frac{\log x}{x} dx$$



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118. Evaluate the following integrals : $\int \frac{(\log x)^2}{x} dx$



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119. Evaluate the following integrals : $\int \frac{(x+1)(x+\log x)^2}{x} dx$



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120. Compute the following integrals:

$$\int \frac{\sin(\log x)}{x} dx$$



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121. Compute the following integrals:

$$\int \left(\log x \frac{\sin \left[1 + (\log x)^2 \right]}{x} \right) dx$$

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122. Compute the following integrals:

$$\int 2x \sec^3(x^2 + 3) \tan(x^2 + 3) dx$$

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123. Compute the following integrals:

$$\int x^2 e^{x^3} \cos e^{x^3} dx$$

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124. Compute the following integrals:

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

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125. Compute the following integrals:

$$\int \cos 5x dx$$

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126. Evaluate the following integrals : $\int \frac{\cos x - \sin x}{1 + \sin 2x}$

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127. Compute the following integrals:

$$\int \frac{1}{3 \cos x + 4 \sin x} dx$$

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128. Compute the following integrals:

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



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129. Prove that :

$$\int \frac{\tan \alpha - \tan x}{\tan \alpha + \tan x} dx = \sin 2\alpha \log|\sin(x + \alpha)| - x \cos 2\alpha + c$$



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130. Evaluate the following integrals:

$$\int \sin x dx$$



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131. Evaluate the following integrals:

$$\int \cos^2 x dx$$

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132. Evaluate the following integrals:

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

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133. Evaluate the following integrals:

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

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134. Evaluate the following integrals:

$$\int \cot^2 x dx$$





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135. Evaluate the following integrals:

$$\int \cos^3 x dx$$



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136. Evaluate the following integrals:

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



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137. Evaluate the following integrals:

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



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138. Evaluate the following integrals:

$$\int \cos^4 2x dx$$

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139. Evaluate the following integrals:

$$\int \sin^5 x dx$$

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140. Evaluate the following integrals:

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

 [Watch Video Solution](#)

141. Evaluate the following integrals : $\int \tan^4 x dx$

 [Watch Video Solution](#)

142. Evaluate the following integrals:

$$\int \sin 2x \cos 3x dx$$

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143. Evaluate the following integrals:

$$\int \sin 6x \cos x dx$$

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144. Evaluate the following integrals:

$$\int \sin 4x \sin 8x dx$$

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145. Evaluate the following integrals:

$$\int \sin 2x \sin 3x dx$$

 [Watch Video Solution](#)

146. Evaluate the following integrals:

$$\int \sin 5x \sin 3x dx$$

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147. Evaluate the following integrals:

$$\int \sin 7x \sin x dx$$

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148. Evaluate the following integrals:

$$\int \cos 3x \cos 5x dx$$





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149. Evaluate the following integrals:

$$\int \cos x \cos 7x dx$$



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150. Evaluate the following integrals:

$$\int \cos 4x \cos 3x dx$$



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151. Evaluate the following integrals:

$$\int \sin x \sin 2x \sin 3x dx$$



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152. Evaluate the following integrals:

$$\int \cos x \cos 2x \cos 3x dx$$

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153. Evaluate the following integrals:

$$\int \sin mx \sin nx dx$$

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154. Evaluate the following integrals:

$$\int \sin mx \cos nx dx \text{ where } m \text{ and } n \text{ are distinct positive integers.}$$

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155. Evaluate the following integrals:

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



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156. Evaluate the following integrals:

$$\int \tan^3(2x) \sec(2x) dx$$

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157. Evaluate the following integrals:

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

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158. Evaluate the following integrals:

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

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159. Evaluate the following integrals : $\int \frac{1 + \sin x}{1 - \sin x} dx$



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160. Evaluate the following integrals:

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



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161. Evaluate the following integrals:

$$\int \frac{\sin x}{1 + \sin x} dx$$



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162. Evaluate the following integrals:

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



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163. Evaluate the following integrals:

$$\int \frac{\sin 2x}{\sin 5x \sin 3x} dx$$

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164. Evaluate the following integrals:

$$\int \frac{1}{\sin x \cos^3 x} dx$$

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165. Evaluate the following integrals:

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

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166. Evaluate the following integrals:

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

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167. Evaluate the following integrals:

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

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168. Evaluate the following integrals:

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

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169.
$$\int \frac{dx}{\sqrt{9 - 25x^2}}$$

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170. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{4-x^2}}$$

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171. Evaluate the following integrals:

$$\int \frac{1}{1 + \frac{x^2}{4}} dx$$

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172. Evaluate the following integrals:

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

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173. Evaluate the following integrals:

$$\int \frac{dx}{4 + 9x^2}$$

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174. Evaluate the following integrals:

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

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175. Evaluate the following integrals:

$$\int \frac{1}{9x^2 + 6x + 5} dx$$

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176. Evaluate the following integrals:

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



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177. Evaluate the following integrals:

$$\int \frac{1}{\sqrt{4+x^2}} dx$$

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178. Evaluate the following integrals:

$$\int \frac{1}{\sqrt{9+x^2}} dx$$

 [Watch Video Solution](#)

179. Evaluate the following integrals:

$$\int \frac{1}{\sqrt{1+4x^2}} dx$$

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180. Evaluate the following integrals:

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

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181. Evaluate the following integrals:

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

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182. Evaluate the following integrals:

$$\int \frac{1}{\sqrt{x^2 - 25}} dx$$

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183. Evaluate the following integrals:

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

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184. Evaluate the following integrals:

$$\int \sqrt{1-x^2} dx$$

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185. Evaluate the following integrals:

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

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186. Evaluate the following integrals:

$$\int \sqrt{1-4x^2} dx$$



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187. Evaluate the following integrals:

$$\int x \sqrt{x^4 - 1} dx$$



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188. Evaluate the following integrals:

$$\int \sqrt{1 + \frac{x^2}{9}} dx$$



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189. Evaluate the following integrals:

$$\int \frac{dx}{e^x + e^{-x}}$$



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190. Evaluate the following integrals:

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

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191. Evaluate the following integrals:

$$\int \frac{3x^2 dx}{x^6 + 1}$$

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192. Evaluate the following integrals:

$$\int \frac{3x}{1 + 2x^4} dx$$

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193. Evaluate the following integrals:

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



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194. Evaluate the following integrals:

$$\int \frac{x^2}{\sqrt{x^6 - a^6}} dx$$



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195. Evaluate the following integrals:

$$\int \frac{x^4 + 1}{x^2 + 1} dx$$



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196. Evaluate the following integrals:

$$\int \frac{2^x}{\sqrt{1 - 4^x}} dx$$



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197. Evaluate the following integrals:

$$\int \sqrt{e^x - 1} dx$$

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198. Evaluate the following integrals:

$$\int \frac{\tan x}{\sec x + \cos x} dx$$

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199. Evaluate the following integrals:

$$\int \frac{1}{4 \sin^2 x + 5 \cos^2 x} dx$$

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200. Evaluate the following integrals :

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



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201. Evaluate the following integrals:

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

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202. Evaluate the following integrals:

$$\int \frac{dx}{1 + 3 \sin^2 x + 8 \cos^2 x}$$

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203. Evaluate the following integrals:

$$\int \frac{\cos x}{\sqrt{4 - \sin^2 x}} dx$$

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204. Evaluate the following integrals

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

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205. Evaluate the following integrals

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

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206. Evaluate the following integrals:

$$\int \left(\sqrt{\frac{2-x}{2+x}} \right) dx$$

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207. Evaluate the following integrals:

$$\int \left(\sqrt{\frac{a-x}{a+x}} \right) dx$$



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208. Evaluate the following integrals:

$$\int \left(\sqrt{\frac{a-x}{a+x}} \right) dx$$



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209. Evaluate the following integrals:

$$\int \frac{(\sin x + \cos x)}{\sqrt{\sin 2x}} dx$$



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210. Prove that: $\int \frac{dx}{x\sqrt{x^2 - a^2}} = \frac{1}{a} \sec^{-1} \left(\frac{x}{a} \right) + c$



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



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212. Evaluate the following integrals:

$$\int x e^x dx$$



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213. Evaluate the following integrals:

$$\int x \sin x dx$$



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214. Evaluate the following integrals:

$$\int x \sin 3x dx$$



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215. Evaluate the following integrals:

$$\int x \cos x dx$$

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216. Evaluate the following integrals:

$$\int (2 - x) \sin x dx$$

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217. Evaluate the following integrals:

$$\int x \sec^2 x dx$$

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218. Evaluate the following integrals:

$$\int x \cos^2 x dx$$





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219. Evaluate the following integrals:

$$\int x \cos 2x \sin 4x dx$$



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220. Evaluate the following integrals:

$$\int \sec^3 x dx$$



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221. Evaluate the following integrals: $\int \cos e^{c^3} x dx$



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222. Evaluate the following integrals:

$$\int \sin \sqrt{x} dx$$

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223. Evaluate the following integrals:

$$\int x^2 e^{3x} dx$$

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224. Evaluate the following integrals:

$$\int x^2 e^{3x} dx$$

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225. Evaluate the following integrals:

$$\int x^2 e^{3x} dx$$





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226. Evaluate the following integrals:

$$\int x^2 e^{-2x} dx$$



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227. Evaluate the following integrals:

$$\int x^2 \sin x dx$$



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228. Evaluate the following integrals:

$$\int x^2 \sin x dx$$



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229. Evaluate the following integrals:

$$\int (1 - x)^2 \sin 2x dx$$

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230. Evaluate the following integrals:

$$\int x^2 \cos^2 x dx$$

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231. Evaluate the following integrals:

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

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232. Evaluate the following integrals:

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



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233. Evaluate the following integrals:

$$\int x^3 \cos x^2 dx$$

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234. Evaluate the following integrals:

$$\int x^{2n-1} \sin x^n dx$$

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235. Evaluate the following integrals:

$$\int x^{2n-1} \cos x^n dx$$

[Watch Video Solution](#)

236. Evaluate the following Integrals :

$$\int \frac{\tan^{-1}}{x^2} \cdot dx$$

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237. Evaluate the following integrals:

$$\int x^3 \log x dx$$

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238. Evaluate the following integrals:

$$\int (x \log 2x) dx$$

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239. Evaluate the following integrals:

$$\int x^2 \log x dx$$





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240. Evaluate the following integrals:

$$\int (x^2 + 1) \log x dx$$



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241. Evaluate the following integrals:

$$\int x^3 \log x dx$$



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242. Evaluate the following integrals:

$$\int x^3 \log x dx$$



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243. Evaluate the following integrals:

$$\int x^n \log x dx$$

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244. Evaluate the following integrals:

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

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245. Evaluate the following integrals:

$$\int \log(5+t) dt$$

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246. Evaluate the following integrals:

$$\int \log(1+x^2) dx$$



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247. Evaluate the following integrals:

$$\int x(\log x)^2 dx$$



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248. Evaluate the following integrals:

$$\int (\log x)^3 dx$$



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249. Evaluate the following integrals:

$$\int \cos 2x \log \sin x dx$$



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250. Evaluate the following integrals:

$$\int x \sin^{-1} x dx$$

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251. Evaluate the following integrals:

$$\int x \cos^{-1} x dx$$

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252. Evaluate the following integrals:

$$\int x^2 \tan^{-1} x dx$$

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253. Evaluate the following integrals:

$$\int x^2 \cot^{-1} x dx$$



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254. Evaluate the following integrals:

$$\int \sin^{-1} x dx$$

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255. Evaluate the following integrals:

$$\int x \cos^{-1} x dx$$

[Watch Video Solution](#)

256. Evaluate the following integrals:

$$\int \cot^{-1} x dx$$

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257. Evaluate the following integrals:

$$\int \tan^{-1} \sqrt{x} dx$$

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258. Evaluate the following integrals:

$$\int \sin^{-1} \sqrt{x} dx$$

 [Watch Video Solution](#)

259. Evaluate the following integrals:

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

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260. Evaluate the following integrals :

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



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261. Evaluate the following integrals:

$$\int x^2 \sin^{-1} x dx$$



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262. Evaluate the following integrals:

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



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263. Evaluate the following integrals:

$$\int \tan^{-1} \sqrt{\frac{1-x}{1+x}} dx$$



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264. Evaluate the following integrals:

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

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265. Evaluate the following integrals :

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

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266. Taking x^2 as $x^3 \left(\frac{1}{x} \right)$ integrate by parts. Use this to find $\int x^2 \log x dx$

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267. Taking $\sin x$ as $\sin x \cdot 1$, integrate by parts, Use this to find $\int x \cos x dx$

 [Watch Video Solution](#)

268. Taking $\sin x$ as $\sin x \cdot 1$, integrate by parts, Use this to find $\int x \cos x dx$

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269. Find the indefinite integral: $\int \cos 2\theta \ln \left(\frac{\cos \theta + \sin \theta}{\cos \theta - \sin \theta} \right) d\theta$

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270. Evaluate the following integrals: $\int e^x \cos x dx$

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271. Evaluate the following integrals:

$$\int e^x \sin 2x dx$$

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272. Evaluate the following integrals:

$$\int e^x \cos 2x dx$$

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273. Evaluate the following integrals:

$$\int e^x \cos 3x dx$$

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274. Evaluate the following integrals:

$$\int e^{3x} \cos 5x dx$$

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275. Evaluate the following integrals:

$$\int e^{3x} \sin 4x dx$$





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276. Evaluate the following integrals:

$$\int e^{2x} \sin x dx$$



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277. Evaluate the following integrals:

$$\int e^{2x} \sin x \cos x dx$$



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278. Evaluate the following integrals: $\int e^x \cos x dx$



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279. Evaluate the following integrals:

$$\int \cos(\log x) dx$$



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280. Evaluate the following integrals:

$$\int x^2 e^{3x} dx$$



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281. Evaluate the following integrals:

$$\int e^{ax} \cos bx dx$$



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282. Evaluate the following integrals:

$$\int e^{ax} \sin(bx + c) dx$$





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283. Find the following integrals

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



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284. Evaluate the following integrals:

$$\int e^x \left(\log x + \frac{1}{x} \right) dx$$



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285. Evaluate the following integrals:

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



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286. Evaluate the following integrals:

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

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287. Evaluate the following integrals: $\int e^x \left(\frac{1 - \sin x}{1 - \cos x} \right) dx$

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288. Evaluate the following integrals: $\int e^x \left(\frac{1 - \sin x}{1 - \cos x} \right) dx$

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289. Evaluate the following integrals:

$$\int e^x \left(\frac{\sin 4x - 4}{1 - \cos 4x} \right) dx$$

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290. Evaluate the following integrals: $\int e^x (\tan x + \log \sec x) dx$



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291. Evaluate the following integrals:

$$\int e^x (\tan x - \log \cos x) dx$$



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292. Evaluate the following integrals:

$$\int e^x (\cot x + \log \sin x) dx$$



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293. Evaluate the following integrals: $\int e^x (\tan x + \sec^2 x) dx$



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294. Evaluate the following integrals: $\int e^x (\cos e c^2 x - \cot x) dx$

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295. Evaluate the following integrals:

$$\int \cos e c x (\cot x - 1) e^x dx$$

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296. Evaluate the following integrals:

$$\int e^x [\sec x + \log(\sec x + \tan x)] dx$$

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297. Evaluate the following integrals: $\int e^x \left(\sin^{-1} x + \frac{1}{\sqrt{1-x^2}} \right) dx$

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298. Evaluate the following integrals:

$$\int \frac{(x + 3)e^x}{((x + 5))^3} dx$$



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299. Evaluate the following integrals:

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



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



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301. Evaluate the following integrals:

$$\int \frac{(2 - x)e^x}{(1 - x)^2} dx$$



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302. Evaluate the following integrals:

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

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303. Evaluate the following integrals:

$$\int e^{2x} \left(\frac{2x - 1}{4x^2} \right) dx$$

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304. Evaluate the following integrals:

$$\int e^x \left(\frac{1 + \sin x \cos x}{\cos^2 x} \right) dx$$

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305. Evaluate the following integrals:

$$\int [\sin(\log x) + \cos(\log x)] dx$$

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306. Evaluate the following integrals:

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

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307. Evaluate the following integrals: $\int e^{2x} \left(\frac{1 - \sin 2x}{1 - \cos 2x} \right) dx$

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308. Evaluate the following integrals:

$$\int e^{2x} \left(\frac{\sin 4x - 2}{1 - \cos 4x} \right) dx$$

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309. Evaluate the following integrals:

$$\int \frac{2 + \sin x}{1 + \cos x} e^{x/2} dx$$



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310. Evaluate the following integrals:

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



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311. Evaluate the following integrals:

$$\int \frac{1}{1 - x^2} dx$$



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312. Evaluate the following integrals: $\int \frac{1}{x^2 - 9} dx$



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313. Evaluate the following integrals:

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



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314. Evaluate the following integrals:

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



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315. Evaluate the following integrals:

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



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316. Evaluate the following integrals:

$$\int \frac{1}{32 - 2x^2} dx$$

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317. Evaluate the following integrals:

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

 [Watch Video Solution](#)

318. Evaluate the following integrals:

$$\int \frac{x^2}{x^2 - 1} dx$$

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319. Evaluate the following integrals:

$$\int \frac{x^2}{x^2 - 4} dx$$



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320. Evaluate the following integrals: $\int \frac{x^2}{1-x^6} dx$



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321. Evaluate the following integrals:

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



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322. Evaluate the following integrals:

$$\int \frac{1}{9x^2 + 6x + 5} dx$$



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323. Evaluate the following integrals:

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



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324. Evaluate the following integrals:

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



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325. Evaluate the following integrals:

$$\int \frac{dx}{x^2 + 4x + 8}$$



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326. Evaluate the following integrals:

$$\int \frac{dx}{x^2 + 4x + 8}$$





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327. Evaluate the following integrals: $\int \frac{x^3 + x + 1}{x^2 - 1} dx$



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328. Evaluate the following integrals:

$$\int \frac{\cos x}{\cos 3x} dx$$



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329. Find the following integral: $\int \frac{x + 2}{2x^2 + 6x + 5} dx$



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330. Evaluate the following integrals:

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



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331. Evaluate the following integrals:

$$\int \frac{5x - 2}{1 + 2x + 3x^2} dx$$

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332. Evaluate the following integrals: $\int \frac{3x - 2}{(x + 1)(x + 3)} dx$

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333. Evaluate the following integrals:

$$\int \frac{x}{2 - 6x - x^2} dx$$

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334. Evaluate the following integrals: $\int \frac{dx}{\sqrt{7 - 6x - x^2}}$





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335. Evaluate the following integrals:

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



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336. Evaluate the following integrals:

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



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337. Evaluate the following integrals:

$$\int \frac{x}{x^4 - x^2 + 1} dx$$



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338. Evaluate the following integrals:

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

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339. Evaluate the following integrals: $\int \frac{dx}{x^2 - 5x + 6} dx$

 [Watch Video Solution](#)

340. Evaluate the following integrals:

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

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341. Evaluate the following integrals:

$$\int \frac{1}{x - x^3} dx$$

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342. Evaluate the following integrals:

$$\int \frac{x + 1}{x^2 + 4x - 5} dx$$



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343. Evaluate the following integrals:

$$\int \frac{2x}{4 - 3x - x^2} dx$$



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344. Evaluate the following integrals:

$$\int \frac{x^2 + 5x + 3}{x^2 + 3x + 2} dx$$



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345. Evaluate the following integrals:

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

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346. Evaluate the following integrals:

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

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347. Evaluate the following integrals:

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

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348. Evaluate the following integrals:

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



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349. Evaluate the following integrals: $\int \frac{x^2 + 1}{x^2 - 5x + 6} dx$



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350. Evaluate the following integrals: $\int \frac{x^3 + x + 1}{x^2 - 1} dx$



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351. Evaluate the following integrals:

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



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352. Evaluate the following integrals: $\int \frac{x^2}{(x - 1)(x - 2)(x - 3)} dx$



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353. Evaluate the following integrals: $\int \frac{x^2}{(x-1)(x-2)(x-3)} dx$

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354. Evaluate the following integrals:

$\int \frac{ax^2 + bx + c}{(x-a)(x-b)(x-c)} dx$, a, b, c are distinct

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355. Evaluate the following integrals:

$\int \frac{bx + C}{(x-p)(x-q)(x-r)} dx$, p, q, r are distinct.

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356. Evaluate the following integrals: $\int \frac{x^2}{(x-1)(x-2)(x-3)} dx$

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357. Evaluate the following integrals:

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



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358. Evaluate the following integrals: $\int \frac{5x}{(x + 1)(x^2 + 9)} dx$



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359. Evaluate the following integrals: $\int \frac{2x - 3}{(x^2 - 1)(2x + 3)} dx$



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360. Evaluate the following integrals:

$$\int 5x^3 dx$$



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361. Evaluate the following integrals: $\int \frac{3x - 2}{(x + 2)^2} dx$

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362. Evaluate the following integrals: $\int \frac{3x - 2}{(x + 1)(x + 3)} dx$

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363. Evaluate the following integrals:

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

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364. Evaluate the following integrals:

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





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365. Evaluate the following integrals:

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



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366. Evaluate the following integrals:

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



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367. Evaluate the following integrals: $\int \frac{3x+1}{(x+1)^2(x+3)} dx$



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368. Evaluate the following integrals:

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



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369. Evaluate the following integrals:

$$\int \frac{1}{1 - x^3} dx$$



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370. Evaluate the following integrals:

$$\int \frac{1}{x^3 - 1} dx$$



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371. Evaluate the following integrals:

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

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372. Evaluate the following integrals: $\int \frac{2}{(1-x)(1+x^2)} dx$

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373. Evaluate the following integrals: $\int \frac{2}{(1-x)(1+x^2)} dx$

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374. Evaluate the following integrals:

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

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375. Evaluate the following integrals:

$$\int \frac{x^4}{x^4 - 16} dx$$

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376. Evaluate the following integrals: $\int \frac{dx}{x^3 + x^2 + x + 1}$

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377. Evaluate the following integrals: $\int \frac{dx}{x^3 + x^2 + x + 1}$

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378. Evaluate the following integrals:

$$\int \frac{18}{(x^2 - 2)(x + 4)} dx$$

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379. Evaluate the following integrals: $\int \frac{2}{(1 - x)(1 + x^2)} dx$

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380. Evaluate the following integrals: $\int \frac{5x}{(x+1)(x^2+9)} dx$

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381. Evaluate the following integrals:

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

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382. Evaluate the following integrals:

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

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383. Evaluate the following integrals:

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



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384. Evaluate the following integrals: $\int \frac{x^2 + 1}{(x^2 + 4)(x^2 + 25)} dx$



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385. Evaluate the following integrals:

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



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386. Evaluate the following integrals: $\int \frac{x^2}{(x^2 + 1)(x^2 + 4)} dx$



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387. Evaluate the following integrals:

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



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388. Evaluate the following integrals:

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



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389. Evaluate the following integrals:

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



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390. Evaluate the following integrals: $\int \frac{\sin 2x}{(1 + \sin x)(2 - \sin x)} dx$



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391. Evaluate the following integrals: $\int \frac{\sin x}{(1 - \cos x)(2 - \cos x)} dx$



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392. Evaluate the following integrals:

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



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393. Evaluate the following integrals:

$$\int \frac{\sin 2x}{(1 - \cos 2x)} dx$$



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394. Evaluate the following integrals: $\int \frac{1}{\sin x - \sin 2x} dx$



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



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396. Evaluate the following integrals:

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



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397. Evaluate the following integrals: $\int \frac{1}{e^x - 1} dx$



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398. Evaluate the following integrals:

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



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399. Evaluate the following integrals:

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

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400. Evaluate the following integrals:

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

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401. Evaluate the following integrals:

$$\int \frac{1}{x [6(\log x)^2 + 7 \log x + 2]} dx$$

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402. Evaluate the following integrals:

$$\int \frac{2 \sin 2\theta - \cos \theta}{6 - \cos^2 \theta - 4 \sin \theta} d\theta$$



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403. Evaluate the following integrals:

$$\int \frac{\tan x + \tan^3 x}{1 + \tan^3 x} dx$$



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404. Evaluate the following Integrals :

$$\int \frac{\tan^{-1} x}{x^2} \cdot dx$$



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405. Evaluate the following integrals:

$$\int \frac{x^4}{x^4 - 16} dx$$



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406. Evaluate the following integrals: $\int \frac{dx}{\sqrt{x(1-2x)}}$

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407. Evaluate the following integrals:

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

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408. Evaluate the following integrals: $\int \frac{dx}{\sqrt{5+4x-x^2}}$

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409. Evaluate the following integrals: $\int \frac{dx}{\sqrt{8+3x-x^2}}$

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410. Evaluate the following integrals: $\int \frac{dx}{\sqrt{16 - 6x - x^2}}$

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411. Evaluate the following integrals: $\int \frac{dx}{\sqrt{7 - 6x - x^2}}$

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412. Evaluate the following integrals: $\int \frac{dx}{\sqrt{3 - 2x - x^2}} dx$

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413. Evaluate the following integrals: $\int \frac{1}{\sqrt{8 + 3x - x^2}} dx$

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414. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{2 + 7x - 3x^2}}$$

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415. Evaluate the following integrals: $\int \frac{dx}{\sqrt{x^2 + 4x + 2}}$

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416. Evaluate the following integrals: $\int \frac{dx}{\sqrt{x^2 + 6x + 4}}$

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417. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{(x - 1)(x - 2)}}$$

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418. Evaluate the following integrals: $\int \frac{dx}{\sqrt{(x-a)(x-b)}}$

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419. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{x}\sqrt{5-x}}$$

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420. Evaluate the following integrals: $\int \frac{1}{\sqrt{5x^2 - 2x}} dx$

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421. Evaluate the following integrals: $\int \frac{1}{\sqrt{8 + 2x - x^2}} dx$

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422. Evaluate the following integrals: $\int \frac{x}{\sqrt{x^2 + x + 1}} dx$

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423. Evaluate the following integrals: $\int \frac{x + 2}{\sqrt{x^2 + 2x + 3}} dx$

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424. Evaluate the following integrals:

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

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425. Evaluate the following integrals: $\int \frac{x}{\sqrt{(x + 1)(x - 2)}} dx$

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426. Evaluate the following integrals: $\int \frac{2x}{\sqrt{(x-1)(x-2)}} dx$

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427. Evaluate the following integrals:

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

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

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429. Evaluate the following integrals: $\int \frac{4x+5}{\sqrt{2x^2+x-3}} dx$

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430. Evaluate the following integrals: $\int \frac{4x + 1}{\sqrt{2x^2 + x - 3}} dx$

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431. Evaluate the following integrals:

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

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432. Evaluate the following integrals:

$$\int \frac{3x + 5}{\sqrt{x^2 - 8x + 7}} dx$$

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433. Evaluate the following integrals:

$$\int \frac{2x + 1}{\sqrt{x^2 + 4x + 3}} dx$$

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434. Evaluate the following integrals: $\int \frac{2x + 3}{\sqrt{x^2 + x + 1}} dx$

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435. Evaluate the following integrals:

$$\int \sqrt{x^2 + 3x} dx$$

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436. Evaluate the following integrals:

$$\int \sqrt{x^2 + 4x + 6} dx$$

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437. Evaluate the following integrals: $\int \sqrt{x^2 + 2x + 5} dx$

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438. Evaluate the following integrals:

$$\int \sqrt{x^2 + 4x + 1} dx$$

 [Watch Video Solution](#)

439. Evaluate the following integrals:

$$\int \sqrt{x^2 + 4x - 5} dx$$

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440. Evaluate the following integrals:

$$\int \sqrt{3 - 2x - x^2} dx$$

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441. Evaluate the following integrals: $\int x \sqrt{x + x^2} dx$

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442. Evaluate the following integrals:

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

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443. Evaluate the following integrals:

$$\int (x - 3)\sqrt{x^2 + 3x - 18} dx$$

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444. Evaluate the following integrals:

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

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445. Evaluate the following integrals: $\int (2x - 5)\sqrt{x^2 - 4x + 3} dx$



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446. Evaluate the following integrals: $\int \frac{dx}{\sqrt{(x-a)(x-b)}}$

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447. Evaluate the following integrals:

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

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448. Evaluate the following integrals: $\int \frac{\sin 2x}{\sqrt{\cos^4 x - \sin^2 x - 4}} dx$

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449. Evaluate the following integrals: $\int \frac{1}{x} dx$

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450. Evaluate the following integrals : $\int \frac{1}{x+2} dx$

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451. Evaluate the following integrals : $\int \frac{dx}{x^3}$

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452. Evaluate the following integrals : $\int \frac{dx}{x^2 + 4x + 4}$

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453. Evaluate the following integrals : $\int \frac{1}{x^2} dx$

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454. Evaluate the following integrals : $\int x^2 + 1 dx$

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455. Evaluate the following integrals : $\int \frac{dx}{\sqrt{2x - x^2}}$

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456. Evaluate the following integrals : $\int \frac{dx}{x\sqrt{x^2 - 1}}$

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457. Evaluate the following integrals : $\int \frac{dx}{x\sqrt{ax - x^2}}$

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458. Evaluate the following integrals : $\int \frac{dx}{(x-1)\sqrt{x^2+4}}$

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459. Evaluate the following integrals : $\int \frac{x}{(x-1)\sqrt{x^2+4}}$

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460. Evaluate the following integrals: $\int \frac{dx}{(x^2-1)\sqrt{x-1}}$

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461. Evaluate the following integrals : $\int \frac{1}{(x^2+4)\sqrt{x^2-4}} dx$

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462. Evaluate the following integrals : $\int \frac{\cos x}{\sin x + \sqrt{\sin x}} dx$

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463. Evaluate the following integrals : $\int \frac{\sin^{-1} x}{x^2} dx$

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464. Evaluate the following integrals: $\int \frac{x^2 - 1}{x^4 + x^2 + 1} dx$

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465. Evaluate the following integrals: $\int \frac{x^2 + 1}{x^4 + x^2 + 1} dx$

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466. Evaluate the following integrals: $\int \frac{x^2 + 1}{x^4 - x^2 + 1} dx$

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467. Evaluate the following integrals: $\int \frac{x^2}{x^4 + x^2 + 1} dx$

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468. Evaluate the following integrals : $\int \frac{1}{x^4 + x^2 + 1} dx$

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469. Evaluate the following integrals: $\int \frac{x^2 + 1}{x^4 - x^2 + 1} dx$

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470. Evaluate the following integrals: $\int \frac{x^2 + 1}{x^4 + 1} dx$



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471. Evaluate the following integrals : $\int \frac{x^2 - 1}{x^4 + 1} dx$



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472. Evaluate the following integrals: $\int \frac{1}{x^4 + 1} dx$



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473. Evaluate the following integrals :

$$\int \frac{x^2}{x^4 + 1} dx$$



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474. Evaluate the following integrals: $\int \frac{1}{x^4 + 1} dx$



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475. Evaluate the following integrals: $\int \frac{x}{1-x^4} dx$

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476. Evaluate the following integrals: $\int \frac{x^2 + a^2}{x^4 + a^4} dx$

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477. Evaluate the following integrals: $\int \frac{x^2 + 4}{x^4 + 16} dx$

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478. Evaluate the following integrals: $\int \frac{x^2 + 4}{x^4 + x^2 + 16} dx$

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479. Evaluate the following integrals: $\int \frac{1}{(x+1)\sqrt{x}} dx$

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480. Evaluate the following integrals: $\int \frac{1}{1+2\cos\theta} d\theta$

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481. Evaluate the following integrals: $\int \frac{dx}{4-3\cos x}$

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482. Evaluate the following integrals: $\int \frac{1}{12+12\cos\theta} d\theta$

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483. Evaluate the following integrals: $\int \frac{1}{4\cos x - 1} dx$



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484. Evaluate the following integrals: $\int \frac{d\theta}{1 - 2 \sin \theta}$



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485. Evaluate the following integrals: $\int \frac{dx}{5 + 4 \sin x}$



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486. Evaluate the following integrals: $\int \frac{dx}{5 - 13 \sin x}$



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487. Evaluate the following integrals: $\int \frac{1}{4 + 5 \cos x} dx$



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488. Evaluate the following integrals: $\int \frac{1}{x(x^3 + 8)} dx$

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489. Evaluate the following integrals: $\int \frac{1}{x(x^5 + 3)} dx$

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490. Evaluate the following integrals: $\int \frac{1}{x(x^4 + 1)} dx$

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491. Evaluate the following integrals: $\int \frac{1}{x(x^6 + 1)} dx$

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492. Evaluate the following integrals: $\int \frac{1}{x(x^7 - 1)} dx$



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493. Evaluate the following integrals :

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



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494. Evaluate the following integrals :

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



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495. Evaluate the following integrals: $\int \frac{dx}{2 \sin x + \cos x + 3}$



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496. Evaluate the following integrals: $\int \frac{4 \sin x + 5 \cos x}{5 \sin x + 4 \cos x} dx$

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497. Evaluate the following integrals: $\int \frac{3 + 2 \cos x + 4 \sin x}{2 \sin x + \cos x + 3} dx$

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498. Evaluate the following integrals: $\int \frac{5 \cos x + 6}{2 \cos x + \sin x + 3} dx$

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499. Evaluate the following integrals: $\int \frac{1}{a + b \tan x} dx$

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500. Evaluate the following integrals: $\int \frac{dx}{4 + 3 \tan x}$

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501. Evaluate the following integrals: $\int \frac{dx}{3 + 4 \cot x}$

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502. Evaluate the following integrals: $\int \frac{dx}{2 + 3 \cot x}$

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503. Evaluate the following integrals : $\int \sqrt{\cot x} dx$

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504. Evaluate the following as limit of a sum :

$$\int_a^b e^x dx$$

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505. Evaluate the following as the limit of a sum:

$$\int_1^2 x dx$$



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506. Evaluate the following as the limit of a sum:

$$\int_1^3 x^2 dx$$



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507. Evaluate the following as the limit of a sum:

$$\int_2^3 x^2 dx$$



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508. Evaluate the following as the limit of a sum:

$$\int_0^4 (x + 1) dx$$



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509. Evaluate the following as the limit of a sum:

$$\int_0^5 (x + 1) dx$$



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510. Evaluate the following as the limit of a sum:

$$\int_0^3 (x + 4) dx$$



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511. Evaluate the following as the limit of a sum:

$$\int_0^4 (2x + 3) dx$$



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512. Evaluate the following as the limit of a sum:

$$\int_0^4 (2x - 1) dx$$



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513. Evaluate the following as the limit of a sum:

$$\int_1^4 (x^2 - x) dx$$



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514. Evaluate : $\int_0^2 (x^2 + 1) dx$ as limit of a sum.

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515. Evaluate the following:

$$\int_0^3 (x^2 + 1) dx$$

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516. Evaluate the following as the limit of a sum:

$$\int_0^2 (x^2 + 3) dx$$

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517. Evaluate the following as the limit of a sum:

$$\int_0^3 (x^2 + 5) dx$$



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518. Evaluate the following as the limit of a sum:

$$\int_0^3 (x^2 + 4x) dx$$



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519. Evaluate the following as the limit of a sum:

$$\int_0^3 (x^2 + 2x) dx$$



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520. Evaluate the following as the limit of a sum:

$$\int_0^4 (x^2 + 2x) dx$$



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521. Evaluate the following as the limit of a sum:

$$\int_1^3 (x^2 + x) dx$$



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522. Evaluate the following as the limit of a sum:

$$\int_2^3 x^2 dx$$



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523. Evaluate the following as limit of a sum :

$$\int_a^b e^x dx$$

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524. Evaluate the following as limit of a sum :

$$\int_a^b e^x dx$$

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525. Evaluate the following as limit of a sum :

$$\int_a^b e^x dx$$

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526. Evaluate the following as limit of a sum :

$$\int_a^b e^x dx$$



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527. Evaluate the following as the limit of a sum:

$$\int_a^b e^{-x} dx$$



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528. Evaluate the following as limit of a sum :

$$\int_2^4 3^x dx$$



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529. Evaluate the following as the limit of a sum:

$$\int_0^1 e^{2-3x} dx$$



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530. Evaluate the following as the limit of a sum:

$$\int_{-1}^1 (x + 3) dx$$



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531. Evaluate the following as the limit of a sum:

$$\int_1^3 (2x^2 + 3x) dx$$



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532. Evaluate the following as the limit of a sum:

$$\int_1^3 (2x^2 + 5x) dx$$



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533. Evaluate the following as the limit of a sum:

$$\int_0^2 (2x^2 - 3) dx$$



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534. Evaluate the following as the limit of a sum:

$$\int_0^2 (x^2 + 3) dx$$



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535. Evaluate the following as the limit of a sum:

$$\int_0^2 (x^2 + 2) dx$$



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536. Evaluate the following as the limit of a sum:

$$\int_1^3 (x^2 + 5x) dx$$



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537. Evaluate the following as the limit of a sum:

$$\int_1^2 (x^2 + 5x) dx$$



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538. Evaluate the following as the limit of a sum:

$$\int_0^1 (3x^2 + 1) dx$$



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539. Evaluate the following as the limit of a sum:

$$\int_0^1 (3x^2 + 1) dx$$



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540. Evaluate the following as the limit of a sum:

$$\int_0^3 (2x^2 + 1) dx$$



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541. Evaluate the following as the limit of a sum:

$$\int_1^3 (3x^2 + 2x) dx$$



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542. Evaluate the following as the limit of a sum:

$$\int_2^5 (3x^2 - 5) dx$$



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543. Evaluate the following as the limit of a sum:

$$\int_0^1 (3x^2x + 1) dx$$



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544. Evaluate the following as the limit of a sum:

$$\int_0^2 (x^2 + 2x + 1) dx$$



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545. Evaluate the following as the limit of a sum:

$$\int_0^1 (2 - 3x + x^2) dx$$

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546. Evaluate the following: $\int_1^2 (2x + 3) dx$

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547. Evaluate the integral: $\int_1^2 3x dx$

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548. Evaluate: $\int_3^5 (2 - x) dx$

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549. Compute the following in two methods and verify that you get same answers. The first method is by using the definition of the definite integral. The second method is by calculating the area enclosed by the

trapezium by the known formula. $\int_4^7 (11x + 1) dx$

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550. Evaluate $\int_1^3 (x^2 + 1) dx$

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551. Evaluate: $\int_a^b \cos x dx$ as the limit of a sum.

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552. Evaluate: $\int_a^b \sin^2 x dx$ as the limit of a sum.

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553. Evaluate the following.

$$\int_{-1}^1 (x + 3) dx$$

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554. Evaluate the following.

$$\int_1^2 x^3 dx$$

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555. Evaluate:

$$\int_0^{\pi/2} \cos x dx$$

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556. Evaluate the following integrals: $\int_4^5 1 dx$

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557. Evaluate the following integrals: $\int_{-1}^2 x dx$

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558. Evaluate the following integrals: $\int_0^4 x^{1/2} dx$

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559. Evaluate the following integrals:

$$\int_0^4 x^{3/2} dx$$

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560. Evaluate the following integrals:

$$\int_0^8 x^{5/3} dx$$

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561. Evaluate the following integrals:

$$\int_2^3 \frac{1}{x} dx$$

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562. Evaluate the following integrals:

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



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563. Evaluate the following integrals:

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



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564. Evaluate the following integrals: $\int_{-1}^1 (x + 1) dx$



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565. Evaluate the following integrals: $\int_2^3 (x^2 + 1) dx$



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566. Evaluate the following integrals:

$$\int_0^1 \frac{dx}{\sqrt{1-x^2}}$$



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567. Evaluate the following integrals: $\int_1^{\sqrt{3}} \frac{dx}{1+x^2}$



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568. Evaluate the following integrals: $\int_0^1 \frac{2x}{1+x^2} dx$



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569. Evaluate the following integrals: $\int_0^1 \frac{x}{x^2 + 1} dx$

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570. Evaluate the following integrals: $\int_2^3 \frac{x}{x^2 - 1} dx$

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571. Evaluate the following integrals:

$$\int_0^1 \frac{dx}{3x - 4}$$

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572. Evaluate the following integrals: $\int_1^3 \frac{dx}{7 - 2x}$

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573. Evaluate the following integrals: $\int_0^1 x(1-x)^5 dx$

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574. Evaluate the following integrals: $\int_0^{\pi/2} \sin x dx$

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575. Evaluate the following integrals: $\int_0^{\pi/2} \cos x dx$

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576. Evaluate the following integrals:

$$\int_{-\pi/2}^{\pi/2} \cos x dx$$

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577. Evaluate the following integrals:

$$\int_0^{\pi/2} \cos 2x dx$$

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578. Evaluate the following integrals: $\int_0^{\pi/4} \tan x dx$

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579. Evaluate the following integrals: $\int_{\pi/4}^{\pi/2} \cot x dx$

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580. Evaluate the following integrals:

$$\int_0^{\pi/4} \sec x dx$$

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581. Evaluate the following integrals:

$$\int_{\pi/6}^{\pi/4} \cos ex dx$$

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582. Evaluate the following integrals: $\int_0^1 3^x dx$

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583. If $\int_0^1 (3x^2 + 2x + k) dx = 0$, write the value of 'k'.

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584. Evaluate the following: $\int_0^{\pi/2} \sin^2 x dx$

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585. Evaluate the following: $\int_0^{\pi/2} \cos^2 x dx$

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586. Evaluate the following: $\int_0^{\pi/2} \sin^3 x dx$

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587. Evaluate the following: $\int_0^{\pi} \left(\sin^2\left(\frac{x}{2}\right) - \cos^2\left(\frac{x}{2}\right) \right) dx$

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588. Evaluate the following: $\int_0^{\pi/2} \frac{\sin^2 x}{(1 + \cos x)^2} dx$

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589. Evaluate the following: $\int_0^1 \left(xe^x + \frac{\sin(\pi x)}{4} \right) dx$

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590. Evaluate the following: $\int_0^1 \frac{dx}{1+x^2}$

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591. Evaluate the following integrals: $\int_2^3 \frac{x}{x^2-1} dx$

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592. Evaluate the following: $\int_1^2 \frac{5x^2}{x^2+4x+3} dx$

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593. Evaluate the following: $\int_1^3 \frac{3x}{9x^2-1} dx$

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594. Evaluate the following: $\int_2^3 \frac{x}{x^2 + 1} dx$

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595. Evaluate the following: $\int_0^1 \left(xe^x + \frac{\sin(\pi x)}{4} \right) dx$

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596. Evaluate the following: $\int_0^k \frac{dx}{2 + 8x^2} = \frac{\pi}{16}$, find the value of 'k'.

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597. Prove that following: $\int_0^1 xe^x dx = 1$

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598. Prove that following: $\int_0^1 \tan^{-1} x dx = \frac{\pi}{4} - \frac{1}{2} \log 2$

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599. Prove that following: $\int_0^a 3x^2 dx = 8$, find the value of 'a'.

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600. Evaluate the following integrals.

$$\int_0^{\pi/4} \tan^4 x dx$$

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601. Evaluate the following integrals.

$$\int_0^{\pi/2} x^2 \sin x dx$$



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602. Evaluate the following integrals.

$$\int_0^{\pi/2} \cos 2x dx$$



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603. Evaluate the following integrals.

$$\int_{-1}^1 \frac{x + 1}{x^2 + 2x + 5}$$



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604. Evaluate the following integrals.

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



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605. Evaluate the following integrals.

$$\int_1^3 \frac{x + 3}{x(x + 2)} dx$$



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606. Evaluate the following integrals.

$$\int_1^3 \frac{dx}{x^2(1 + x)}$$



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607. Evaluate the following integrals.

$$\int_0^{\pi} \frac{x dx}{a^2 - \cos^2 x}, (a > 1)$$



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608. Evaluate the following integrals.

$$\int_3^4 \frac{2x}{\sqrt{x^2 + 4}}$$



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609. Evaluate the following integrals.

$$\int_{\pi/2}^{\pi} e^x \frac{1 - \sin x}{1 - \cos x} dx$$



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610. Evaluate the following integrals.

$$\int_1^2 \left(\frac{1}{x} - \frac{1}{2x^2} \right) e^{2x} dx$$



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611. Evaluate the following integrals.

$$\int_0^1 \frac{1}{\sqrt{x+3} - \sqrt{x+1}} dx$$

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612. Prove that $\int_0^{\pi/2} \cos^4 x dx = \frac{3\pi}{16}$

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613. If $f(x)$ is of the form $f(x) = a + bx + cx^2$, show that

$$\int_0^1 f(x) dx = \frac{1}{6} \left[f(0) + 4f\left(\frac{1}{2}\right) + f(1) \right]$$

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614. For each of the following functions $f(x)$, verify that:

$$\int_0^0 f(x)dx = \int_0^1 f(x)dx + \int_1^2 f(x)dx : f(x) = x + 2$$



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615. For each of the following functions $f(x)$, verify that:

$$\int_0^0 f(x)dx = \int_0^1 f(x)dx + \int_1^2 f(x)dx : f(x) = x^2 + 2$$



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616. For each of the following functions $f(x)$, verify that:

$$\int_0^0 f(x)dx = \int_0^1 f(x)dx + \int_1^2 f(x)dx : f(x) = e^x$$



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617. For each of the following pairs of function $f(x)$ and $g(x)$, verify that:

$$\int_0^1 [f(x) + g(x)]dx = \int_0^1 f(x)dx + \int_0^1 g(x)dx : f(x) = 1, g(x) = x^2$$



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618. For each of the following pairs of function $f(x)$ and $g(x)$, verify that:

$$\int_0^1 [f(x) + g(x)]dx = \int_0^1 f(x)dx + \int_0^1 g(x)dx : f(x) = e^x, g(x) = 1$$



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619. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$(1/3) \int \frac{(x-x^3)^{1/3}}{x^4} dx$$



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620. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_{-1}^1 x^3(x^4 + 1)^3 dx$$

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621. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^1 x\sqrt{1-x^2} dx$$

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622. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^1 \frac{x}{x^2 + 1} dx$$

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623. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^2 \frac{6x + 3}{x^2 + 4} dx$$

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624. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^1 \frac{x^2}{1 + x^6} dx$$

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625. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^2 x\sqrt{x+2} dx$$



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626. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_1^2 5x \sqrt{5 - x^2} dx$$



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627. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_4^9 \frac{\sqrt{x}}{(30 - x^{3/2})^2} dx$$



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628. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

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



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629. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

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



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630. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^{\pi/2} \cos x e^{\sin x} dx$$



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631. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^{\pi/3} (1 - \cos 3\theta) \sin 3\theta d\theta$$

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632. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^{\pi} 5(5 - 4 \cos \theta)^{1/4} \sin \theta d\theta$$

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633. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^{\pi/3} \frac{\sec x \tan x}{1 + \sec^2 x} dx$$

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634. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_{\pi/6}^{\pi/2} \frac{\cos ecx \cot x}{1 + \cos ec^2 x} dx$$



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635. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^{\pi/2} \frac{dx}{5 + 4 \sin x}$$



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636. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^{\pi/2} \frac{dx}{6 - \cos x}$$



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637. Evaluate the following integrals by changing the limits of integration after suitable substitutions:

$$\int_0^{\pi} \frac{dx}{5 + 3 \cos x}$$



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638. Prove that $\int_0^2 x^2 \sqrt{2-x} dx = \frac{128\sqrt{2}}{105}$



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639. Evaluate the following integrals: $\int_0^{\pi/2} \frac{dx}{4 \cos x + 2 \sin x}$



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640. Evaluate the following integrals: $\int_0^{\pi/2} \frac{dx}{a \cos x + b \sin x}$, $a, b > 0$

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641. Evaluate the following integrals: $\int_0^{\pi} \frac{dx}{3}$

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642. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin x}{1 + \cos^2 x} dx$$

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643. Evaluate the following integrals: $\int_0^{\pi/4} \frac{\sin x + \cos x}{9 + 16 \sin 2x}$

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644. Evaluate the following integrals: $\int_0^{\pi/2} \frac{\sin 2x}{\sin^4 x + \cos^4 x} dx$

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645. Evaluate the following integrals: $\int_0^{\pi/4} \frac{\sin x + \cos x}{\cos^2 x + \sin^4 x} dx$

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646. Evaluate the following integrals: $\int_0^{\pi/4} \frac{\sin x \cdot \cos x}{\cos^4 x + \sin^4 x} dx$

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647. Evaluate the following integrals: $\int_0^{\pi/2} \frac{\cos x}{\left(\frac{\cos(x)}{2} + \frac{\sin(x)}{2}\right)^3} dx$



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648. Evaluate the following integrals : $\int_0^1 \cos^{-1} \left(\frac{1-x^2}{1+x^2} \right) dx$

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649. Evaluate the following integrals : $\int_0^1 \tan^{-1} \left(\frac{2x}{1-x^2} \right) dx$

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650. Evaluate the following integrals : $\int_0^1 \frac{2x-1}{1+x-x^2} dx$

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651. Evaluate the following integrals : $\int_0^{\pi/2} \frac{Dx}{1+\cos^2 x}$

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652. Evaluate the following integrals : $\int_0^{\pi/2} \frac{dx}{4 \sin^2 x + 5 \cos^2 x}$

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653. Evaluate the following integrals : $\int_0^1 \frac{\tan^{-1} x}{1 + X^2} dx$

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654. Evaluate the following integrals : $\int_0^{\pi/2} 2 \sin x \cos x \tan^{-1}(\sin x) dx$

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655. Evaluate the following integrals : $\int_{\pi/4}^{\pi/2} \cos 2x \log \sin x dx$

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656. Prove that $\int_{-a}^a \sqrt{\frac{a-x}{a+x}} dx = a\pi$

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657. Evaluate: $\int_0^1 x (\tan^{-1} x)^2 dx$

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658. Evaluate $\int \frac{\cos x}{(1 - \sin x)(2 - \sin x)} dx$

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659. Evaluate: $\int_0^{\pi/4} \sin^3 2t \cos 2t dt$

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660. Evaluate the following integrals:

$\int_0^{1.5} [x] dx$, where $[x]$ is greatest integer function.

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661. Evaluate the following integrals:

$\int_0^{\pi/2} \frac{\cos x}{\sin x + \cos x + 1} dx$

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662. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx$$

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663. $\int_0^{\pi/2} \left(\frac{\sqrt{\cos x}}{\sqrt{\sin x} + \sqrt{\cos x}} \right) dx$ is equal to

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664. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{dx}{1 + \sqrt{\tan x}}$$

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665. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{dx}{1 + \sqrt{\cot x}}$$

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666. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{1}{1 + \tan^3 x} dx$$

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667. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sqrt{\cot x}}{\sqrt{\cot x} + \sqrt{\tan x}} dx$$

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668. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin^{3/2} x}{\sin^{3/2} x + \cos^{3/2} x} dx$$

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669. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin^3 x}{\sin^3 x + \cos^3 x} dx$$

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670. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin^4 x}{\sin^4 x + \cos^4 x} dx$$

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671. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\cos^5 x}{\sin^5 x + \cos^5 x} dx$$



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672. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin^5 x}{\sin^5 x + \cos^5 x} dx$$



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673. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin^7 x}{\sin^7 x + \cos^7 x} dx$$



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674. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\cos^7 x}{\cos^7 x + \sin^7 x} dx$$

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675. Evaluate the following integrals:

$$\int_0^a \frac{\sqrt{x}}{\sqrt{x} + \sqrt{a-x}} dx$$

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676. Evaluate the following integrals:

$$\int_0^5 \frac{\sqrt{x}}{\sqrt{x} + \sqrt{5-x}} dx$$

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677. Evaluate the following integrals:

$$\int_0^{\frac{\pi}{2}} \frac{dx}{x + \sqrt{a^2 - x^2}}$$



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678. Evaluate the following integrals:

$$\int_0^2 x \sqrt{2-x} dx$$



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679. Evaluate the following integrals:

$$\int_0^1 x(1-x)^n dx$$



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680. Evaluate the following integrals:

$$\int_{\pi/6}^{\pi/3} \frac{dx}{1 + \sqrt{\tan x}}$$

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681. Evaluate the following integrals:

$$\int_{\pi/6}^{\pi/3} \frac{Dx}{1 + \sqrt{\cot x}}$$

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682. Evaluate the following integrals:

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx$$

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683. Evaluate the following integrals:

$$\int_1^3 \frac{\sqrt{4-x}}{\sqrt{x} + \sqrt{4-x}} dx$$

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684. Evaluate the following integrals:

$$\int_0^a \frac{\sqrt{x}}{\sqrt{x} + \sqrt{a-x}} dx$$

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685. Prove that $\int_0^1 x(1-x)^5 dx = \frac{1}{42}$

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686. Evaluate:

$$\int_{-1}^1 \log\left(\frac{2-x}{2+x}\right) dx.$$



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687. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\cos x}{3 \cos x + \sin x} dx$$



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688. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin^2 x}{\sin x + \cos x} dx$$



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689. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin x - \cos x}{1 + \sin x \cos x} dx$$



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690. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin x}{1 + \cos^2 x} dx$$



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691. Evaluate the following integrals:

$$\int_0^{\pi} \frac{x}{1 + \sin x} dx$$



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692. Evaluate the following integrals:

$$\int_0^{\pi} \frac{x}{a^2 \cos^2 x + b^2 \sin^2 x} dx, a, b > 0$$

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693. Evaluate the following integrals:

$$\int_0^1 \frac{\log(1+x)}{1+x^2} dx$$

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694. Evaluate the following integrals:

$$\int_{-\pi/2}^{\pi/2} (5 \sin^3 x + 8 \sin x + 4 \cos^2 x) dx$$

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695. Evaluate the following integrals:

$$\int_{-8}^8 (\sin^{93} x + x^{295}) dx$$



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696. Evaluate the following integrals:

$$\int_{-1}^1 \sin^5 x \cos^4 x dx$$



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697. Evaluate the following integrals:

$$\int_{-\pi/4}^{\pi/4} x^3 \sin^4 x dx$$



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698. Evaluate the following integrals:

$$\int_{-1}^1 x^{17} \cos^4 x dx$$



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699. Evaluate the following: $\int_0^{\pi/2} \sin^3 x dx$



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700. Evaluate the following: $\int_0^{2/\pi} \cos^2 x dx$



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701. Prove that $\int_{-\pi/4}^{\pi/4} \sin^2 x dx = \frac{\pi}{4} - \frac{1}{2}$



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702. Prove that $\int_{-\pi/4}^{\pi/4} \cos^2 x dx = \frac{\pi}{4} + \frac{1}{2}$

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703. Prove that: $\int_0^{2\pi} \cos^5 x = 0$

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704. Evaluate the following integrals:

$$\int_{-\pi/2}^{\pi/2} \cos x dx$$

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705. Evaluate the following:

$$\int_{-\pi/4}^{\pi/4} |\sin x| dx$$



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706. Evaluate the following:

$$\int_{-\pi/2}^{\pi/2} |\sin x| dx$$



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707. Evaluate the following:

$$\int_{-\pi/4}^{\pi/4} \sin^2 x dx$$



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708. Evaluate the following:

$$\int_{-\pi/2}^{\pi/2} \sin^2 x dx$$



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709. Evaluate the following:

$$\int_0^{\pi/2} \sin^5 x dx$$



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710. Evaluate the following:

$$\int_{-\pi/2}^{\pi/2} \sin^7 x dx$$



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711. Evaluate the following:

$$\int_{-\pi}^{\pi} x^{10} (\sin x)^7 dx$$



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712. Evaluate the following:

$$\int_0^{\frac{\pi}{2}} \frac{x \sin x \cos x}{\sin^4 x + \cos^4 x} dx$$



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713. Evaluate the following:

$$\int_0^{\pi/2} \sin x \cos x \tan^{-1}(\sin x) dx$$



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714. Prove that following:

$$\int_0^{\pi} \frac{x \tan x}{\sec x + \cos x} dx = \frac{\pi^2}{4}$$



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715. Integrate the following:

$$\int_0^{\pi} \frac{\sin x}{1 + \cos^2 x} dx$$



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716. Prove that following:

$$\int_0^{\pi/2} \frac{\sin x - \cos x}{1 + \sin x \cos x} dx = 0$$



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717. Integrate the following:

$$\int_0^{\pi/2} (\cos^2 x)$$

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718. Prove that following:

$$\int_0^{\pi} \frac{x \tan x}{\sec x + \tan x} dx = \pi \left(\frac{\pi}{2} - 1 \right)$$

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719. Prove that following:

$$\int_0^{\pi} \frac{x \tan x}{\sec x + \cos x} dx = \frac{\pi^2}{4}$$

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720. Prove that following:

$$\int_0^1 \log\left(\frac{1}{x} - 1\right) dx = 0$$



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721. Prove that following:

$$\int_0^1 |x - 5| dx$$



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722. Prove that following:

$$\int_1^5 x - 3 dx.$$



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723. Integrate:

$$\int_{-5}^5 (x + 2) dx$$



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724. Prove that following:

$$\int_{-3}^1 |x + 2| dx$$



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725. Evaluate the following integrals:

$$\int_{-1}^1 \sin^5 x \cos^4 x dx$$



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726. Prove that following:

$$\int_{-1}^1 x^{17} \cos^4 x dx$$



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727. Prove that following:

$$\int_{-98}^{98} (x^{99} + x^{49} + x^{19}) Dx$$



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728. Integrate the following:

$$\int_{-2}^2 x + 1 dx$$



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729. Prove that following:

$$\int_{-4}^2 |x + 1| dx$$



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730. Prove that following:

$$\int_{-1}^1 e^{|x|} dx$$



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731. Prove that following:

$$\int_{-1}^1 |2x + 1| dx$$



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732. Prove that following:

$$\int_{-1}^1 |2x + 1| dx$$



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733. Prove that following:

$$\int_0^4 |x - 1| dx$$



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734. Prove that following:

$$\int_2^5 |x - 1| dx$$



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735. Prove that following:

$$\int_2^7 |x - 5| dx$$



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736. Prove that following:

$$\int_{1/4}^1 |2x - 1| dx$$



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737. Prove that following:

$$\int_0^{\pi} |\cos x| dx$$



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738. Prove that following:

$$\int_0^{\pi/2} |\sin x \cos x| dx$$



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739. Prove that following:

$$\int_{-1}^{3/2} |x \sin \pi x| dx$$



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740. Prove that following:

$$\int_1^3 f(x) dx \text{ when } f(x) = |x-1| + |x-2| + |x-3|$$



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741. Prove that following:

$$\int_2^5 f(x) dx \text{ When } f(x) = |x-2| + |x-3| + |x-5|$$



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742. Prove that following:

$$\int_{-\pi/2}^{\pi/2} (2 \sin|x| + \cos|x|) dx$$



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743. Prove that following:

$$\int_{-1}^1 (x - [x]) dx$$



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744. Prove that following:

$$\int_1^4 f(x) dx, \text{ where } f(x) = \begin{cases} (4x + 3, & \text{if } 1 \leq x \leq 2), \\ (3x + 5, & \text{if } 2 \leq x \leq 4) \end{cases}$$

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745. Prove that following:

$$\int_0^9 f(x) dx, \text{ where } f(x) = \begin{cases} (\sin x, & \text{if } 0 \leq x \leq \frac{\pi}{2}), \\ (1, & \text{if } \frac{\pi}{2} \leq x \leq 3) \end{cases}$$

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746. Evaluate: $\int_0^{\pi} \frac{x \tan x}{\sec x + \cos x} dx$

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747. Evaluate: $\int_0^{\pi/2} \log|\sin x| dx$



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748. Evaluate: $\int_0^{\pi/2} \log|\cos x| dx$



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749. Evaluate: $\int_0^{\pi/2} \log \tan x dx$



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750. Evaluate the following integrals:

$$\int \frac{3ax}{b^2 + c^2x^2} dx$$



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751. Evaluate the following integrals:

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

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752. Evaluate the following integrals: $\int \frac{x^2}{x^4 + x^2 + 1} dx$

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753. Evaluate the following integrals:

$$\int \frac{\sqrt{1 + x^2}}{x^4} dx$$

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754. Evaluate the following integrals:

$$\int \frac{\sin^{-1} x}{(1 - x^2)^{1/2}} dx$$

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755. Evaluate the following integrals : $\int \frac{\sin^6 x + \cos^6 x}{\sin^2 x \cos^2 x} dx$

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756. Find: $\int \frac{\sqrt{x}}{\sqrt{a^3 - x^3}}$

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757. Evaluate the following integrals:

$$\int_{\pi/3}^{\pi/2} \frac{\sqrt{(1 + \cos x)}}{(1 - \cos x)^{5/2}} dx$$

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758. Evaluate the following integrals:

$$\int_{-\pi/4}^{\pi/4} \log(\sin x + \cos x) dx$$

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759. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\tan x}{1 + m^2 \tan^2 x} dx$$

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760. Evaluate the following integrals:

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

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761. Evaluate the following integrals: $\int \frac{1}{x^2 - 9} dx$



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762. Evaluate: $\int_e^{e^2} \frac{dx}{x \log x}$



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763. Evaluate $\int x^2 \log x dx$.



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764. Evaluate : $\int_1^4 (3x^2 + 2x) dx$ as the limit of sum.



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765. Evaluate: $\int_0^{\pi} \frac{x \sin x}{1 + \cos^2 x} dx$



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766. Prove that : $\int_0^{\pi} \frac{x \tan x}{\sec x \cos ecx} dx = \frac{\pi^2}{4}$.

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767. Evaluate $\int \frac{2 \sin 2x - \cos x}{6 - \cos^2 x - 4 \sin x} dx$.

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768. By using the properties of definite integrals, evaluate the integral:

$$\int_0^{\frac{\pi}{2}} (2 \log \sin x - \log \sin 2x) dx$$

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