MATHS

BOOKS - V PUBLICATION

INTEGRALS

Question Bank

1. Write an antiderivative for each of the following functions using the method of inspection.

i) $\cos 2x$

ii) $3x^2 + 4x^3$

iii) $\dfrac{1}{x}, x \neq 0$

▶ **Watch Video Solution**

2. Find the following integrals:

i) $\int \dfrac{x^3 - 1}{x^2} dx$

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

ifi) $\int \left(\dfrac{x^2}{3} + 2e^x - \dfrac{1}{x} \right) dx$

> ▶ Watch Video Solution

3. Find the following integrals. i) $\int (\sin x + \cos x) dx$ ii) $\int (\cos ecx (\cos ecx + \cot x) dx$ iii) $\int \dfrac{1 - \sin x}{\cos^2 x} dx$

> ▶ Watch Video Solution

4. Find the antiderivative F of f defined by $f(x) = 4x^3 - 6$, where $F(0) = 3$

> ▶ Watch Video Solution

5. Find the antiderivative (or integral) of the following functions by the method of inspection. $\sin 2x$

▶ **Watch Video Solution**

6. Find the antiderivative (or integral) of the following functions by the method of inspection. $\cos 3x$

▶ **Watch Video Solution**

7. Find the antiderivative (or integral) of the following functions by the method

of inspection. e^{2x}

8. Find the antiderivative (or integral) of the following functions

by the method

of inspection. $(ax + b)^2$

9. Find the antiderivative (or integral) of the following functions

by the method of inspection. $\sin 2x - 4e^{3x}$

10. Find the integrals $\int (4e^{3x} + 1) dx$

11. Evaluate the following integrals $\int x^2 \left(1 - \dfrac{1}{x^2}\right) dx$

12. Evaluate the following integrals $\int (ax^2 + bx + c) \, dx$

13. Evaluate the following integrals $\int (2x^2 + e^x) \, dx$

14. Find the integrals $\int \left(\sqrt{x} - \dfrac{1}{\sqrt{x}} \right)^2 dx$

15. Evaluate the following integrals: $\int \dfrac{x^3 + 5x^2 - 4}{x^2} dx$

16. Evaluate the following integrals: $\int \dfrac{x^3 + 3x + 4}{\sqrt{x}} dx$

17. Evaluate the following integrals $\int \dfrac{x^3 - x^2 + x - 1}{x - 1} dx$

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

▶ **Watch Video Solution**

19. Find the integrals $\int \left(\sqrt{x}\left(3x^2 + 2x + 3\right)\right) dx$

▶ **Watch Video Solution**

20. Evaluate the following integrals $\int (2x - 3\cos x + e^x)\,dx$

▶ **Watch Video Solution**

21. Find the integrals $\int \left(2x^2 - 3\sin x + 5\sqrt{x}\right) dx$

▶ **Watch Video Solution**

22. Find the integrals $\int \sec x(\sec x + \tan x)dx$

23. Find the following integrals.

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

24. Find the integral $\int \frac{2 - 3\sin x}{\cos^2 x}dx$

25. The anti derivative of $\sqrt{x} + \dfrac{1}{\sqrt{x}}$ is a) $\dfrac{1}{3}x^{\frac{1}{3}} + 2x^{\frac{1}{2}} + C$ b) $\dfrac{2}{3}x^{\frac{2}{3}} + \dfrac{1}{2}x^2 + C$ c) $\dfrac{2}{3}x^{\frac{3}{2}} + 2x^{\frac{1}{2}} + C$ d) $\dfrac{3}{2}x^{\frac{3}{2}} + \dfrac{1}{2}x^{\frac{1}{2}} + C$

A. 1/3 x^(1/3)+2 x^(1/2)+C'

B. 2/3 x^(2/3)+1/2 x^2+C'

C. 2/3 x^(3/2)+2 x^(1/2)+C'

D. 3/2 x^(3/2)+1/2 x^(1/2)+C'

Answer: C

▶ Watch Video Solution

26. If $\dfrac{d}{dx}f(x) = 4x^3 - \dfrac{3}{x^4}$ such that $f(2) = 0$, then $f(x)$ is a) $x^4 + \dfrac{1}{x^3} - \dfrac{129}{8}$ b) $x^3 + \dfrac{1}{x^4} + \dfrac{129}{8}$ c) $x^4 + \dfrac{1}{x^3} + \dfrac{129}{8}$ d) $x^3 + \dfrac{1}{x^4} - \dfrac{129}{8}$

A. x^4+1/x^3-(129)/8'

B. x^3+1/x^4 + (129)/8'

C. x^4+1/x^3+(129)/8'

D. x^3+1/x^4-(129)/8'

Answer: A

27. Integrate the following functions w.r.t. x

i) $\sin mx$

ii) $2x \sin(x^2 + 1)$

iii) $\dfrac{\tan^4 \sqrt{x} \sec^2 \sqrt{x}}{\sqrt{x}}$

iv) $\dfrac{\sin(\tan^{-1} x)}{1 + x^2}$

28. Find the following integrals:

i) $\int \left(\sin^3 x \cos^2 x \right) dx$

ii) $\int \dfrac{\sin x}{\sin(x + a)} dx$

iii) $\int \dfrac{1}{1 + \tan x} dx$

29. Integrate the function $\dfrac{2x}{1 + x^2}$

30. Integrate the following functions $\dfrac{(\log x)^2}{x}$

31. Integrate the following functions $\dfrac{1}{x + x \log x}$

32. Integrate the function $\sin x \sin(\cos x)$

33. Integrate the following functions sin(ax+b) cos(ax+b).

34. Integrate the following functions $\sqrt{ax + b}$

35. Integrate the following functions $x\sqrt{x+2}$

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

37. Integrate the following functions $(4x+2)\sqrt{x^2+x+1}$

38. Integrate the following functions $\dfrac{1}{x-\sqrt{x}}$

39. integrate the function $\dfrac{x}{\sqrt{x+4}}$, $x > 0$

> ▶ Watch Video Solution

40. Integrate the function $\left(x^3 - 1\right)^{\frac{1}{3}} x^5$

> ▶ Watch Video Solution

41. Integrate the following functions $\dfrac{x^2}{\left(2 + 3x^3\right)^3}$

> ▶ Watch Video Solution

42. Integrate the following functions $\dfrac{1}{x(\log x)^m}$, $x > 0$

> ▶ Watch Video Solution

43. Integrate the function $\dfrac{x}{9 - 4x^2}$

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

45. Integrate the function $\dfrac{x}{e^{x^2}}$

46. Integrate the following functions $\dfrac{e^{\tan^{-1}x}}{1 + x^2}$

47. Integrate the function $\dfrac{e^{2x} - 1}{e^{2x} + 1}$

▶ Watch Video Solution

48. Integrate the following functions $\dfrac{e^{2x} - e^{-2x}}{e^{2x} + e^{-2x}}$

▶ Watch Video Solution

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

▶ Watch Video Solution

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

▶ Watch Video Solution

51. Integrate the following functions: $\dfrac{\sin^{-1} x}{\sqrt{1 - x^2}}$

52. Integrate the function $\dfrac{2\cos x - 3\sin x}{6\cos x + 4\sin x}$

53. Integrate the following functions $\dfrac{1}{\cos^2 x (1 - \tan x)^2}$

54. Integrate the function $\dfrac{\cos \sqrt{x}}{\sqrt{x}}$

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

56. Integrate the function $\dfrac{\cos x}{\sqrt{1+\sin x}}$

57. Integrate the function $\cot x \log \sin x$

58. Integrate the function $\dfrac{\sin x}{1+\cos x}$

59. Integrate the function $\dfrac{\sin x}{\left(1 + \cos x\right)^2}$

60. Integrate the function $\dfrac{1}{1 + \cot x}$

61. Integrate the function $\dfrac{1}{1 - \tan x}$

62. Integrate the function $\dfrac{\sqrt{\tan x}}{\sin x \cos x}$

63. Integrate the function $\dfrac{(1 + \log x)^2}{x}$

64. Integrate the following functions $\dfrac{(x + 1)(x + \log x)^2}{x}$

65. Integrate the function $\dfrac{x^3 \sin(\tan^{-1} x^4)}{1 + x^8}$

66. $\int \dfrac{10x^9 + 10^x \log_e 10}{x^{10} + 10^x} dx$ equal   a)$10^x - x^{10} + C$ b) $10^x + x^{10} + C$ c)$(10^x - x^{10})^{-1} + C$ d)$\log(10^x + x^{10}) + C$

A. 10^x-x^(10)+C'

B. 10^x+x^(10)+C'

C. (10^x-x^(10))^-1+C '

D. log (10^x+x^(10))+C'

Answer: D

▶ **Watch Video Solution**

67. $\int \dfrac{dx}{\sin^2 x \cos^2 x}$ equals   a)$\tan x + \cot x + C$ b) $\tan x - \cot x + C$ c)$\tan x \cot x + C$ d)$\tan x - \cot 2x + C$

A. tan x+cot x+C'

B. 'tan x-cot x+C'

C. tan x cot x+C'

D. tan x-cot 2 x+C'

Answer: B

▶ **Watch Video Solution**

68. Find i) $\int \left(\cos^2 x \right) dx$

ii) $\int \left(\sin 2x \cos 3x \right) dx$

iii) $\int \left(\sin^3 x \right) dx$

▶ **Watch Video Solution**

69. Find the integrals $\sin^2(2x + 5)$

▶ **Watch Video Solution**

70. Find the integrals $\sin 3x \cos 4x$

▶ **Watch Video Solution**

71. Find the integrals

$\cos 2x \cos 4x \cos 6x$

▶ **Watch Video Solution**

72. Find the integral $\sin^3(2x + 1)$

▶ **Watch Video Solution**

73. Find the integral $\sin^3 x \cos^3 x$

74. Find the integrals

$$\sin x \sin 2x \sin 3x$$

75. Find the integral $\sin 4x \sin 8x$

76. Find the integral $\dfrac{1 - \cos x}{1 + \cos x}$

77. Find the integral $\dfrac{\cos x}{1 + \cos x}$

78. Find the integral $\sin^4 x$

79. Find the integral $\cos^4 2x$

80. Find the integral $\dfrac{\sin^2 x}{1 + \cos x}$

81. Find the integral $\dfrac{\cos 2x - \cos 2\alpha}{\cos x - \cos \alpha}$

82. Find the integral $\dfrac{\cos x - \sin x}{1 + \sin 2x}$

83. Find the integral $\tan^3 2x \sec 2x$

84. Find the integral $\tan^4 x$

85. Integrate the following functions: $\dfrac{\sin^3 x + \cos^3 x}{\sin^2 x \cos^2 x}$

86. Integrate the following functions $\dfrac{\cos 2x + 2\sin^2 x}{\cos^2 x}$

87. Find the integral $\dfrac{1}{\sin x \cos^3 x}$

88. Find the integral $\dfrac{\cos 2x}{(\cos x + \sin x)^2}$

89. Find the integral $\sin^{-1}(\cos x)$

90. Find the integrals

$$\dfrac{1}{\cos(x-a)\cos(x-b)}$$

91. $\int \dfrac{\sin^2 x - \cos^2 x}{\sin^2 x \cos^2 x} dx$ is equal to a)$\tan x + \cot x + C$ b) $\tan x + \cos ecx + C$ c)$-\tan x + \cot x + C$ d)

$$\tan x + \sec x + C$$

A. tan x+cot x+C'

B. tan x+operatornamecosec x+C'

C. -tan x+cot x+C'

D. tan x+sec x+C'

Answer: A

 Watch Video Solution

92. $\int \dfrac{e^x(1+x)}{\cos^2(e^x x)} dx$ equals a)$-\cot(ex^x) + C$ b)$\tan(xe^x) + C$ c) $\tan(e^x) + C$ d)$\cot(e^x) + C$

A. -cot (e x^x) C'

B. tan (x e^x)+C'

C. tan (e^x)+C'

D. cot (mathbfe^x)+mathbfC'

Answer: B

▶ **Watch Video Solution**

---

93. Find $\int \dfrac{1}{\sqrt{2x - x^2}} dx$

▶ **Watch Video Solution**

---

94. Find the following integrals:

i) $\int \dfrac{dx}{x^2 - 6x + 13}$

ii) $\int \dfrac{dx}{3x^2 + 13x - 10}$

iii) $\int \dfrac{dx}{\sqrt{5x^2 - 2x}}$.

▶ Watch Video Solution

95. Integrate $\int \dfrac{x+2}{2x^2+6x+5} dx$

▶ **Watch Video Solution**

96. Integrate the function $\dfrac{3x^2}{x^6+1}$

▶ **Watch Video Solution**

97. integrate the function $\dfrac{1}{\sqrt{1+4x^2}}$

▶ **Watch Video Solution**

98. Integrate the following functions $\dfrac{1}{\sqrt{(2-x)^2+1}}$

99. integrate the function $\dfrac{1}{\sqrt{9 + 25x^2}}$

100. Integrate the function $\dfrac{3x}{1 + 2x^4}$

101. Integrate the following functions $\dfrac{x^2}{1 - x^6}$

102. Integrate the following functions $\dfrac{x-1}{\sqrt{x^2-1}}$

▶ Watch Video Solution

103. Integrate the following functions $\dfrac{x^2}{\sqrt{x^6+a^6}}$

▶ Watch Video Solution

104. Integrate the following functions $\dfrac{\sec^2 x}{\sqrt{\tan^2 x+4}}$

▶ Watch Video Solution

105. Integrate the following functions $\dfrac{1}{\sqrt{x^2+2x+2}}$

▶ Watch Video Solution

106. integrate the function $\dfrac{1}{9x^2 + 6x + 5}$

107. Integrate the following functions $\dfrac{1}{7 - 6x - x^2}$

108. Integrate the following functions $\dfrac{1}{\sqrt{(x-1)(x-2)}}$

109. Integrate the following functions $\dfrac{1}{\sqrt{8 + 3x - x^2}}$

110. Integrate the following functions $\dfrac{1}{\sqrt{(x-a)(x-b)}}$

111. Integrate the following functions $\dfrac{4x+1}{\sqrt{2x^2+x-3}}$

112. integrate the function $\dfrac{x+2}{\sqrt{x^2-1}}$

113. integrate the function $\dfrac{5x-2}{1+2x+3x^2}$

114. Integrate the function $\dfrac{6x + 7}{\sqrt{(x - 5)(x - 4)}}$

115. Integrate the function $\dfrac{x + 2}{\sqrt{4x - x^2}}$

116. integrate the function $\dfrac{x + 2}{\sqrt{x^2 + 2x + 3}}$

117. integrate the functions

$$\frac{x+3}{x^2 - 2x - 5}$$

118. Integrate the functions

$$\frac{5x+3}{\sqrt{x^2 + 4x + 10}}$$

119. Find the following:

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

A. x tan ^-1(x+1)+C'

B. tan ^-1(x+1)+C'

C. (x+1) tan ^-1 x+C'

D. tan ^-1 x+C'

Answer: B

▶ **Watch Video Solution**

---

120. Find $\int \dfrac{dx}{\sqrt{9x - 4x^2}}$

A. $19 \sin^{-1}(9x - 88) + C$

B. $12 \sin^{-1}(8x - 99) + C.$

C. $13 \sin^{-7}(9x - 88) + C$

D. $12 \sin^{-1}(9x - 88) + C$

Answer: B

▶ **Watch Video Solution**

121. Find $\int \dfrac{dx}{(x+1)(x+2)}$

122. Find $\int \dfrac{3x-2}{(x+1)^2(x+3)}dx$

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

124. Find $\int \dfrac{(3\sin\phi-2)\cos\phi}{5-\cos^2\phi-4\sin\phi}d\phi$

125. Find the following integrals.

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

▶ **Watch Video Solution**

126. Evaluate the integrals

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

▶ **Watch Video Solution**

127. Integrate the follwing functions: $\dfrac{1}{x^2 - 9}$

▶ **Watch Video Solution**

128. Integrate the following $\dfrac{3x - 1}{(x - 1)(x - 2)(x - 3)}$

▶ Watch Video Solution

129. integrate the rational fraction $\dfrac{x}{(x - 1)(x - 2)(x - 3)}$

▶ Watch Video Solution

130. Integrate the follwing functions: $\dfrac{2x}{x^2 + 3x + 2}$

▶ Watch Video Solution

131. Integrate the follwing functions: $\dfrac{1 - x^2}{x(1 - 2x)}$

▶ Watch Video Solution

132. Integrate the rational fraction

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

133. Find $\displaystyle\int \frac{x}{(x - 1)^2(x + 2)}\,dx$

134. integrate the rational fraction

$$\frac{3x + 5}{x^3 - x^2 - x + 1}$$

135. integrate the rational fraction $\displaystyle\frac{2x - 3}{(x^2 - 1)(2x + 3)}$

136. integrate the rational fraction $\dfrac{5x}{(x+1)(x^2-4)}$

137. Integrate the follwing functions: $\dfrac{x^3+x+1}{x^2-1}$

138. Integrate the follwing functions: $\dfrac{2}{(1-x)(1+x^2)}$

139. Integrate the follwing functions: $\dfrac{3x - 1}{(x + 2)^2}$

▶ Watch Video Solution

140. Integrate the follwing functions: $\dfrac{1}{x^4 - 1}$

▶ Watch Video Solution

141. Integrate the follwing functions: $\dfrac{1}{x(x^n + 1)}$

▶ Watch Video Solution

142. Integrate the rational fraction $\dfrac{\cos x}{(1 - \sin x)(2 - \sin x)}$

▶ Watch Video Solution

143. Integrate the follwing functions: $\dfrac{\left(x^2 + 1\right)\left(x^2 + 2\right)}{\left(x^2 + 3\right)\left(x^2 + 4\right)}$

▶ Watch Video Solution

144. Integrate the follwing functions: $\dfrac{2x}{\left(x^2 + 1\right)\left(x^2 + 3\right)}$

▶ Watch Video Solution

145. Integrate the follwing functions: $\dfrac{1}{x\left(x^4 - 1\right)}$

▶ Watch Video Solution

146. Integrate the follwing functions: $\dfrac{1}{e^x - 1}$

▶ Watch Video Solution

147. Find $\int \dfrac{xdx}{(x-1)(x-2)}$

A. log |(x-1)^2/(x-2)|+C'

B. log |(x-2)^2/(x-1)|+C'

C. log |((x-10/(x-2))^2|+C'

D. log |(x-1)(x-2) 7+C'

Answer: C

▶ **Watch Video Solution**

148. Choose the correct answer $\int \dfrac{dx}{x(x^2+1)} =$

A. log .|x|-1/2 log _0(x^2+i)+C'

B. log (x]+1/2 log (x^2+1)+c'

C. -log |x|+1/2 log (x^2+1)+C'

D. 1/2 log |x|+log (x^2+1)+C'

Answer: A

▶ **Watch Video Solution**

149. Find $\int x \cos x \, dx$

▶ **Watch Video Solution**

150. Find $\int (\log x \, dx)$

▶ **Watch Video Solution**

151. Find $\int x e^x \, dx$

152. Find $\int \dfrac{x \sin^{-1} x}{\sqrt{1 - x^2}} \, dx$

153. Find $\int e^x \sin x \, dx$

154. Find $\int e^x \left(\tan^{-1} x + \dfrac{1}{1 + x^2} \right) dx$

155. Integrate the function $x \sin x$

▶ Watch Video Solution

156. Integrate the following functions $x \sin 3x$

▶ Watch Video Solution

157. Integrate the following functions $x^2 e^x$

▶ Watch Video Solution

158. Integrate the following functions $x \log x$

▶ Watch Video Solution

159. Integrate the following functions $x \log 2x$

▶ Watch Video Solution

160. Integrate the following functions $x^2 \log x$

▶ Watch Video Solution

161. Integrate the following functions $x \sin^{-1} x$

▶ Watch Video Solution

162. Integrate the following functions $x \tan^{-1} x$

▶ Watch Video Solution

163. Integrate the following functions $x \cos^{-1} x$

▶ Watch Video Solution

164. Integrate the following functions $\left(\sin^{-1} x \right)^2$

▶ Watch Video Solution

165. Integrate the following functions $\dfrac{x \cos^{-1} x}{\sqrt{1 - x^2}}$

▶ Watch Video Solution

166. Integrate the following functions $x \sec^2 x$

▶ Watch Video Solution

167. Integrate the following functions $\tan^{-1} x$

▶ Watch Video Solution

168. Integrate the following functions $x(\log x)^2$

▶ Watch Video Solution

169. Integrate the following functions $(x^2 + 1)\log x$

▶ Watch Video Solution

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

▶ Watch Video Solution

171. Integrate the following functions $\dfrac{xe^x}{(1+x)^2}$

▶ Watch Video Solution

172. Integrate the following functions $e^x \left(\dfrac{1 + \sin x}{1 + \cos x} \right)$

▶ Watch Video Solution

173. Integrate the following functions $e^x \left(\dfrac{1}{x} - \dfrac{1}{x^2} \right)$

▶ Watch Video Solution

174. Integrating the following functions $\dfrac{(x - 3)e^x}{(x - 1)^3}$

▶ Watch Video Solution

175. Integrate the following functions $e^{2x} \sin x$

176. Integrate the following functions $\sin^{-1}\left(\dfrac{2x}{1+x^2}\right)$

177. Choose the correct answer $\int x^2 e^{x^3}\, dx =$

A. '1/3 e^x^3+C'

B. 1/3 e^x^2+C'

C. 1/2^x^3+C'

D. 1/2 e^x^2+C'

Answer: A

---

178. $\int e^x \sec x (1 + \tan x)dx$ equals A)$e^x \cos x + C$ B) $e^x \sec x + C$ C)$e^x \sin x + C$ D)$e^x \tan x + C$

A. e '^x cos x+C'

B. e^x sec x+C'

C. 'e^x sin x+c'

D. e^x tan x+C'

Answer: B

179. Find $\int \sqrt{x^2 + 2x + 5}\,dx$

▶ **Watch Video Solution**

180. Find $\int \sqrt{3 - 2x - x^2}\,dx$

▶ **Watch Video Solution**

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

▶ **Watch Video Solution**

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

▶ **Watch Video Solution**

183. Integrate the function $\sqrt{x^2 + 4x + 6}dx$

▶ Watch Video Solution

184. Integrate the function $\sqrt{x^2 + 4x + 1}$

▶ Watch Video Solution

185. Integrate the function $\sqrt{1 - 4x - x^2}dx$

▶ Watch Video Solution

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

▶ Watch Video Solution

187. Integrate the function $\sqrt{1 + 3x - x^2}$

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

189. Integrate the function $\sqrt{1 + \dfrac{x^2}{9}}$

190. Choose the correct answer $\int \sqrt{1 + x^2} \, dx$ is equal to A) $\dfrac{x}{2}\sqrt{1 + x^2} + \dfrac{1}{2}\log\left|x + \sqrt{1 + x^2}\right| + C$ B) $\dfrac{2}{3}\left(1 + x^2\right)^{\frac{3}{2}} + C$ C)

$$\frac{3}{2}x\left(1+x^2\right)^{\frac{3}{2}} + C$$

D)

$$\frac{x^2}{2}\sqrt{1+x^2} + \frac{1}{2}x^2 \log\left|x + \sqrt{1+x^2}\right| + C$$

A. x/2 sqrt(1+x^2)+1/2 log |x+sqrt(1+x^2)|+C'

B. 2/3(1+x^2)^(3 / 2)+C'

C. 3/2 x(1+x^2)^(3 / 2)+C'.

D. ' x^2/2 sqrt(1+x^2)+1/2 x^2 log |x+sqrt(1+x^2)|+C'

Answer: A

▶ **Watch Video Solution**

---

191. $\int \sqrt{x^2 - 8x + 7}dx$ is equal to

A)

$$\frac{1}{2}(x-4)\sqrt{x^2 - 8x + 7} + 9\log\left|x - 4 + \sqrt{x^2 - 8x + 7}\right| + C$$

B)

$$\frac{1}{2}(x - 4)\sqrt{x^2 - 8x + 7} + 9\log \mid x + 4 + \sqrt{x^2 - 8x + 7} + C$$

C)

$$\frac{1}{2}(x - 4)\sqrt{x^2 - 8x + 7} + 3\sqrt{2}\log \mid x - 4 + \sqrt{x^2 - 8x + 7} + C$$

D)

$$\frac{1}{2}(x - 4)\sqrt{x^2 - 8x + 7} - \frac{9}{2}\log\left|x - 4 + \sqrt{x^2 - 8x + 7}\right| + C$$

A. 1/2(x-4) sqrt(x^2-8 x+7)+9 log |x-4+sqrt(x^2-8 x+7)|+C'

B. 1/2(x-4) sqrt(x^2-8 x+7)+9 log | x+4+sqrt(x^2-8 x+7)+C'

C. 1/2(x-4) sqrt(x^2-8 x+7)+3 sqrt(2) log | x-4+sqrt(x^2-8

   x+7)+C'

D. 12(x-4) sqrt(x^2-8 x+7)-9/2 log x-4+sqrt(x^2-8 x+7)+C'

Answer: D

▶ Watch Video Solution

192. Evaluate $\displaystyle\int_0^2 \left(x^2 + 1\right) dx$

as the limit of a sum

> ▶ **Watch Video Solution**

193. Evaluate $\displaystyle\int_0^2 e^x \, dx$ as limit of a sum.

> ▶ **Watch Video Solution**

194. Evaluate the following definite integrals as limits of sums.

$$\int_a^b x \, dx$$

> ▶ **Watch Video Solution**

195. Evaluate the following definite integrals as limit of a sum

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

▶ Watch Video Solution

196. Evaluate the following definite integrals as limits of sums.

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

▶ Watch Video Solution

197. Evaluate the following definite integrals as limits of sums.

$$\int_1^4 \left(x^2 - x\right)dx$$

▶ Watch Video Solution

198. Evaluate the following definite integrals as limits of sums.

$$\int_{-1}^{1} e^x dx$$

▶ Watch Video Solution

199. Evaluate the following definite integrals as limits of sums.

$$\int_{0}^{4} \left(x + e^{2x}\right) dx$$

▶ Watch Video Solution

200. Evaluate the following integrals: $\displaystyle\int_{4}^{9} \frac{\sqrt{x}}{\left(30 - x^{\frac{3}{2}}\right)^2} dx$

▶ Watch Video Solution

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

202. Evaluate the following integrals: $\displaystyle\int_{2}^{3} \frac{1}{x}dx$

203. Evaluate the definite integral $\displaystyle\int_{1}^{2} \left(4x^3 - 5x^2 + 6x + 9\right) dx$

204. Evaluate the following integrals: $\displaystyle\int_{0}^{\frac{\pi}{4}} \sin 2x dx$

205. Evaluate the definite integral $\int_0^{\frac{\pi}{2}} \cos 2x \, dx$

▶ **Watch Video Solution**

206. Evaluate the following integrals: $\int_4^5 e^x \, dx$

▶ **Watch Video Solution**

207. Evaluate the following integrals: $\int_0^{\frac{\pi}{4}} \tan x \, dx$

▶ **Watch Video Solution**

208. Evaluate the following integrals: $\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \cos ecx \, dx$

209. Evaluate the following integrals: $\int_0^1 \dfrac{dx}{\sqrt{1-x^2}}$

▶ **Watch Video Solution**

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

▶ **Watch Video Solution**

211. Evaluate the definite integral $\int_2^3 \dfrac{dx}{x^2-1}$

▶ **Watch Video Solution**

212. Using properties evaluate the following definite integrals

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

▶ Watch Video Solution

213. Evaluate the following integrals: $\int_2^3 \left(\dfrac{x}{x^2 + 1} \right) dx$

▶ Watch Video Solution

214. Evaluate the definite integral $\int_0^1 \dfrac{2x + 3}{5x^2 + 1} dx$

▶ Watch Video Solution

215. Evaluate the definite integral $\int_0^1 x e^{x^2} dx$

216. Evaluate the following integrals: $\displaystyle\int_1^2 \dfrac{5x^2}{x^2 + 4x + 3}\,dx$

217. Evaluate the following integrals: $\displaystyle\int_0^{\frac{\pi}{4}} \left(2\sec^2 x + x^3 + 2\right) dx$

218. Evaluate the following integrals:

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

219. Evaluate the following integrals: $\int_0^2 \dfrac{6x+3}{x^2+4}\,dx$

220. Evaluate the following integrals: $\int_0^1 \left(xe^x + \sin\left(\dfrac{\pi x}{4}\right) \right) dx$

221. $\int_1^{\sqrt{3}} \dfrac{dx}{1+x^2}$ equals a) $\dfrac{\pi}{3}$ b) $\dfrac{2\pi}{3}$ c) $\dfrac{\pi}{6}$ d) $\dfrac{\pi}{12}$

A. pi/3'

B. 2 pi/3'

C. pi/6'

D. pi/(12)'

Answer: D

222. Choose the correct answer. $\displaystyle\int_{0}^{\frac{2}{3}} \frac{dx}{4 + 9x^2}$

a) $\dfrac{\pi}{6}$ b) $\dfrac{\pi}{12}$ c) $\dfrac{\pi}{24}$ d) $\dfrac{\pi}{4}$

A. 'pi/6'

B. pi/(12)'

C. pi/(24)'

D. 'pi/4'.

Answer: C

223. Evaluate $\displaystyle\int_{-1}^{1} 5x^4 \sqrt{x^5 + 1}\,dx$

> ▶ Watch Video Solution

224. Evaluate $\displaystyle\int_{0}^{1} \frac{\tan^{-1} x}{1 + x^2}\,dx$

> ▶ Watch Video Solution

225. Evaluate the following definite integrals $\displaystyle\int_{0}^{1} \frac{x}{x^2 + 1}\,dx$

> ▶ Watch Video Solution

226. Evaluate the following definite integrals $\displaystyle\int_{0}^{\frac{\pi}{2}} \sqrt{\sin \phi}\,\cos^5 \phi\,d\phi$

> ▶ Watch Video Solution

227. Evaluate the following definite integrals

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

▶ **Watch Video Solution**

228. Evaluate the integral $\int_0^2 x\sqrt{x+2}\,dx$

▶ **Watch Video Solution**

229. Find the following integrals.

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

▶ **Watch Video Solution**

230. Evaluate the integral $\displaystyle\int_0^2 \frac{dx}{x + 4 - x^2}$

231. Evaluate the integral $\displaystyle\int_{-1}^1 \frac{dx}{x^2 + 2x + 5}$

232. Evaluate the following definite integrals

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

233. Choose the correct answer. $\displaystyle\int_{\frac{1}{3}}^1 \frac{\left(x - x^3\right)^{\frac{1}{3}}}{x^4} dx =$

A. 6

B. 0

C. 3

D. 4

Answer: A

▶ **Watch Video Solution**

---

234. If f(x) = $\int_0^x t \sin t \, dt$, then find

$f'(x)$

A. cos x+x sin x'

B. 'x sin x'

C. x cos x'

D. sin x+x cos x'

Answer: B

▶ **Watch Video Solution**

---

235. Evaluate $\displaystyle\int_{-1}^{2} |x^3 - x| dx$

▶ **Watch Video Solution**

---

236. Evaluate $\displaystyle\int_{-\frac{\pi}{4}}^{\frac{\pi}{4}} \sin^2 x dx$

▶ **Watch Video Solution**

---

237. Evaluate $\displaystyle\int_{0}^{\pi} \frac{x \sin x}{1 + \cos^2 x} dx$

238. Evaluate $\int_{-1}^{1} \sin^5 x \cos^4 x \, dx$

239. Find the value of

$\int_{0}^{\frac{\pi}{2}} \dfrac{\sin^4 x}{\sin^4 x + \cos^4 x} dx$

240. Evaluate $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \dfrac{dx}{1 + \sqrt{\tan x}}$

241. Find $\displaystyle\int_0^{\frac{\pi}{2}} \log \sin x \, dx$

▶ **Watch Video Solution**

242. By using properties of definite integrals, evaluate the integrals $\displaystyle\int_0^{\frac{\pi}{2}} \cos^2 x \, dx$

▶ **Watch Video Solution**

243. By using properties of definite integrals, evaluate the integrals $\displaystyle\int_0^{\frac{\pi}{2}} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} \, dx$

▶ **Watch Video Solution**

244. Using properties evaluate the following definite integrals

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

> ▶ Watch Video Solution

245. Using properties evaluate the following definite integrals

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

> ▶ Watch Video Solution

246. Evaluate the following $\int_{-5}^{5} |x + 2| dx$

> ▶ Watch Video Solution

247. Using properties evaluate the following definite integrals, evaluate the following: $\int_2^8 |x - 5| dx$

248. Using properties evaluate the following definite integrals, evaluate the following: $\int_0^1 x(1 - x)^n dx$

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

250. By using properties of definite integrals, evaluate the integrals $\int_0^2 x\left(\sqrt{2-x}\right)dx$

251. Using properties evaluate the following definite integrals, evaluate the following: $\int_0^{\frac{\pi}{2}} (2\log\sin x - \log\sin 2x)dx$

252. Using properties evaluate the following definite integrals, evaluate the following: $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin^2 x dx$

253. By using properties of definite integrals, evaluate the integrals $\displaystyle\int_0^\pi \frac{x}{1+\sin x}dx$

254. Evaluate the following:

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin^7 x\,dx$$

255. Using properties evaluate the following definite integrals, evaluate the following: $\displaystyle\int_0^{2\pi} \cos^5 x\,dx$

256. Using properties evaluate the following definite integrals,

evaluate the following: $\int_0^{\frac{\pi}{2}} \dfrac{\sin x - \cos x}{1 + \sin x \cos x} dx$

> ▶ Watch Video Solution

257. Using properties evaluate the following definite integrals,

evaluate the following: $\int_0^a \dfrac{\sqrt{x}}{\sqrt{x} + \sqrt{a - x}} dx$

> ▶ Watch Video Solution

258. Using properties evaluate the following definite integrals,

evaluate the following: $\int_0^4 |x - 1| dx$

> ▶ Watch Video Solution

259. Show that $\displaystyle\int_0^a f(x)g(x)\,dx = 2\int_0^a f(x)\,dx$, if f and g are

defined as $f(x) = f(a - x)$ and $g(x) + g(a - x) = 4$

260. Choose the correct answer

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \left(x^3 + x\cos x + \tan^5 x + 1\right)dx =$$

A. 0

B. 2

C. pi'

D. 1

Answer: C

261. The value of $\int_0^{\frac{\pi}{2}} \log\left(\dfrac{4 + 3\sin x}{4 + 3\cos x}\right) dx$ is a)2 b)$\dfrac{3}{2}$ c)0 d)-2

A. 2

B. 3/2'

C. 0

D. -2

Answer: C

▶ Watch Video Solution

262. Find $\int\left(\cos 6x \sqrt{1 + \sin 6x}\right) dx$

▶ Watch Video Solution

263. Find $\displaystyle\int \frac{(x^4 - x)^{\frac{1}{4}}}{x^5} dx$

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

265. Find $\displaystyle\int \left(\log(\log x) + \frac{1}{(\log x)^2} \right) dx$

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

267. Prove that $\displaystyle\int_0^{\pi} \frac{x}{a^2 \cos^2 x + b^2 \sin^2 x}\,dx = \frac{\pi^2}{2ab}$

268. integrate the functions $\dfrac{1}{x - x^3}$

269. integrate the functions $\dfrac{1}{\sqrt{x + a} + \sqrt{x + b}}$

270. Integrate the function $\dfrac{1}{x\sqrt{ax - x^2}}$

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

272. Integrate the functions

$$\dfrac{1}{x^{\frac{1}{2}}+x^{\frac{1}{3}}}$$

273. Integrate the functions

$$\dfrac{5x}{(x+1)(x^2+9)}$$

274. Integrate the following

$$\frac{\sin x}{\sin(x - a)}$$

▶ **Watch Video Solution**

275. Integrate the following functions w.r.t.x $\dfrac{e^{5\log x} - e^{4\log x}}{e^{3\log x} - e^{2\log x}}$

▶ **Watch Video Solution**

276. Integrate the function $\dfrac{\cos x}{\sqrt{4 - \sin^2 x}}$

▶ **Watch Video Solution**

277. Integrate the function $\dfrac{\sin^8 x - \cos^8 x}{1 - 2\sin^2 x \cos^2 x}$

278. Integrate the functions

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

279. Integrate the following functions $\dfrac{x^3}{\sqrt{1 - x^8}}$

280. integrate the following functions $\dfrac{e^x}{(1 + e^x)(2 + e^x)}$

281. Integrate the function $\dfrac{1}{(x^2 + 1)(x^2 + 4)}$

▶ Watch Video Solution

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

▶ Watch Video Solution

283. Integrate the function $e^{3 \log x}\left(x^4 + 1\right)^{-1}$

▶ Watch Video Solution

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

▶ Watch Video Solution

285. Integrate the function $\dfrac{2 + \sin 2x}{1 + \cos 2x} e^x$

▶ Watch Video Solution

286. Integrate the function $\dfrac{x^2 + x + 1}{(x + 1)^2 (x + 2)}$

▶ Watch Video Solution

287. Integrate the function

$\tan^{-1} \sqrt{\dfrac{1 - x}{1 + x}}$

▶ Watch Video Solution

288. integrate the functions

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

289. Evaluate the definite integral $\displaystyle\int_0^1 \frac{dx}{\sqrt{1 + x} - \sqrt{x}}$

290. Prove the following: $\displaystyle\int_1^3 \frac{dx}{x^2(x + 1)} = \frac{2}{3} + \log\left(\frac{2}{3}\right)$

291. Prove the following: $\displaystyle\int_0^1 xe^x dx = 1$

292. Prove the following $\int_{-1}^{1} x^{17} \cos^4 x\, dx = 0$

293. prove $\int_{0}^{\frac{\pi}{2}} \sin^3 x\, dx = \frac{2}{3}$

294. prove $\int_{0}^{\frac{\pi}{4}} 2\tan^3 x\, dx = 1 - \log 2$

295. Prove that $\int_0^1 \sin^{-1} x\,dx = \left(\dfrac{\pi}{2}\right) - 1$

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

297. $\int \dfrac{dx}{e^x + e^{-x}}$ is equal to a)$\tan^{-1}(e^x) + C$ b) $\tan^{-1}(e^{-x}) + C$ c)$\log(e^x - e^{-x}) + C$ d)$\log(e^x + e^{-x}) + C$

A. tan ^(-1)(e^x)+C^circ'

B. tan '^(-1)(e^-x)+C'

C. log (e^x-e^-x)+C'

D. log (e^x+e^-x)+C'

Answer: A

298. $\int \dfrac{\cos 2x}{(\sin x + \cos x)^2} dx$ is equal to a)$- \dfrac{1}{\sin x + \cos x} + C$ b) $\log|\sin x + \cos x| + C$ c)$\log|\sin x - \cos x| + C$ d) $1(\sin x + \cos x)^2$

A. -1sin x+cos x+C'

B. log |sin x+cos x|+C'

C. log |sin x-cos x|+C'

D. 1(sin x+cos x)^2'

Answer: B

299. If f(a+b-x) = f(x), then $\int_a^b x f(x) dx$ =

A. (a+b)/2 int_a^b f(b-x) d x'

B. (a+b)/2 int_a^b f(b+x) d x'

C. (a-b)/2 int_a^b f(x) d x'

D. (a+b)/2 int_a^b f(x) d x'

Answer: D

▶ **Watch Video Solution**

300. Choose the correct answer $\int_0^1 \tan^{-1}\left(\dfrac{2x-1}{1+x-x^2}\right) dx$ =

A. 1

B. 0

C. -1'

D. pi/4'

Answer:

> ▶ **Watch Video Solution**

---

301. Evaluate $\displaystyle\int \frac{5x + 1}{x^2 - 2x - 35}\,dx$

> ▶ **Watch Video Solution**

---

302. Evaluate the definite integral $\displaystyle\int_0^1 x^2\,dx$ as the limit of a sum.

> ▶ **Watch Video Solution**

303. Evaluate $\int \left(x + \dfrac{1}{x} \right)^2 dx$

304. Evaluate $\int (2 + \sin x + 3 \cos x + e^x + x) dx$

305. Evaluate $\int \dfrac{\sin^4 x + \cos^4 x}{\sin^2 x \cos^2 x} dx$

306. If $f'(x) = x^3 - \dfrac{2}{x^2}$ and $f(2) = 3$ find $f(x)$

307. Evaluate $\int (2x+3)^4 dx$

308. Evaluate $\int \dfrac{\sin x + \cos x}{\sqrt{1+\sin 2x}} dx$

309. Evaluate $\int \left(\dfrac{x}{\sqrt{x-1}} \right) dx$

310. Evaluate $\int \left(\dfrac{\sin \sqrt{x}}{\sqrt{x}} \right) dx$

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

▶ Watch Video Solution

312. Evaluate $\int (x^3 \cos x^4 dx)$

▶ Watch Video Solution

313. Evaluate $\int (e^x + e^{-x})^2 dx$

▶ Watch Video Solution

314. Evaluate $\int \dfrac{dx}{e^x - 1}$

▶ Watch Video Solution

315. Evaluate $\int \left(\dfrac{\sqrt{\tan x}}{2 \sin x \cos x} \right) dx$

▶ Watch Video Solution

316. Evaluate $\int \dfrac{\tan\left(\sin^{-1} x\right)}{\sqrt{1 - x^2}} dx$

▶ Watch Video Solution

317. Evaluate $\int \left(x\sqrt{1 + x} \right) dx$

▶ Watch Video Solution

318. Evaluate $\int \dfrac{dx}{1 + 4\cos^2 x}$

319. Evaluate $\int \dfrac{dx}{x^2 - 4x + 8}$

320. Evaluate $\int \dfrac{dx}{2x^2 + 5x + 1}$

321. Evaluate $\int \dfrac{dx}{7 - 4x - 2x^2}$

322. Evaluate $\int \dfrac{dx}{\sqrt{16 - 6x - x^2}}$

323. Evaluate $\displaystyle\int \frac{dx}{\sqrt{x^2 - 4x + 2}}$

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

325. Evaluate $\displaystyle\int \frac{x + 5}{(x + 1)(x + 2)^2}dx$

326. Evaluate $\displaystyle\int \frac{x\,dx}{1 + x + x^2 + x^3}$

▶ **Watch Video Solution**

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

▶ **Watch Video Solution**

328. Integrate the following function with respect to x,

$\sqrt{1 + \sin x}$

▶ **Watch Video Solution**

329. Integrate the following function with respect to x, $\dfrac{e^{2x}}{e^x + 1}$

▶ Watch Video Solution

330. Integrate the following function with respect to x ,

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

▶ Watch Video Solution

331. Integrate the following function with respect to x,

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

▶ Watch Video Solution

332. Integrate the following function with respect to x, $\cos^4 x$

▶ Watch Video Solution

333. Integrate the following function with respect to x,

$$x^2 e^{x^3} \cos\left(e^{x^3}\right)$$

▶ **Watch Video Solution**

334. Integrate the following function with respect to x , $\dfrac{\cot \sqrt{x}}{2\sqrt{x}}$

▶ **Watch Video Solution**

335. Integrate the following function with respect to x,

$$\dfrac{\tan x}{\log|\sec x|}$$

▶ **Watch Video Solution**

336. Integrate the following function with respect to x,

$$e^{\sqrt{x}} \cdot \frac{1}{2\sqrt{x}}$$

▶ Watch Video Solution

337. Integrate the following function with respect to x,

$$\frac{\cot(\log x)}{x}$$

▶ Watch Video Solution

338. Integrate the following function with respect to x,

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

▶ Watch Video Solution

339. Intégrate the following functionis with respect to x

$$\frac{\cot x}{\sqrt{\sin x}}dx$$

340. Integrate the following function with respect to x ,

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

341. Integrate the following function with respect to x,

$$\frac{1}{x(1 + \log x)}$$

342. Integrate the following function with respect to x ,

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

343. Find the integral $\sin^3(2x + 1)$

344. Intégrate the following functions with respect to x

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

345. Intégrate the following functions with respect to x

$$\frac{\cos \sqrt{x}}{\sqrt{x}}\, dx$$

▶ Watch Video Solution

346. Integrate the following function with respect to x,

$$\cos 2x (\cos x + \sin x)^2$$

▶ Watch Video Solution

347. Integrate the following function with respect to x,

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

▶ Watch Video Solution

348. Integrate the following function with respect to x ,

$$\frac{x+2}{2x^2 + 6x + 5}$$

▶ Watch Video Solution

349. Integrate the following function with respect to x ,

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

▶ Watch Video Solution

350. integrate the function $\dfrac{5x-2}{1+2x+3x^2}$

▶ Watch Video Solution

351. Integrate the following function with respect to x ,

$$\frac{1}{2x^2 + 3x + 5}$$

▶ Watch Video Solution

352. Integrate the following function with respect to x:

$$\frac{1}{x(x^5 + 1)}$$

▶ Watch Video Solution

353. Integrate the following functions $\dfrac{3x^2}{x^6 + 1}$

▶ Watch Video Solution

354. Integrate the following function with respect to x:

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

▶ Watch Video Solution

355. Integrate the following function with respect to x :

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

▶ Watch Video Solution

356. Intégrate the following functions with respect to x

$$\frac{1}{\sqrt{7 - 6x - x^2}} dx$$

▶ Watch Video Solution

357. Integrate the following function with respect to x:

$$\frac{2x - 1}{(x - 1)(x + 2)(x - 3)}$$

▶ Watch Video Solution

358. Evaluate $\int \dfrac{x}{(x - 1)(x + 2)^2} dx$

▶ Watch Video Solution

359. Integrate the following function with respect to x :

$x^3 \cos 2x$

▶ Watch Video Solution

360. Integrate the following function with respect to x : $x^3 e^x$

361. Integrate the function $e^x \left(\sin x + \cos x \right)$

362. Integrate the following function with respect to x :

$$\frac{e^x \left(x + 1 \right)}{\left(x + 2 \right)^2}$$

363. Integrate the following function with respect to x :

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

364. Integrate the following function with respect to x: $\sqrt{9 - x^2}$

> ▶ Watch Video Solution

365. Integrate the following function with respect to x : $\sqrt{2x - x^2}$

> ▶ Watch Video Solution

366. Evaluate $\int_1^3 2x\,dx$ as the limit of a sum.

> ▶ Watch Video Solution

367. $\int_0^4 (x - 1)\,dx$

> ▶ Watch Video Solution

368. $\displaystyle\int_0^2 e^x \, dx$

369. Evaluate $\displaystyle\int_x^5 \sin x \, dx$

370. $\displaystyle\int_1^2 \left(4 - x^2\right) dx$

371. Evaluate $\displaystyle\int_2^5 x^2 \, dx$

372. Evaluate $\displaystyle\int_2^3 \sqrt{x}dx$

373. Evaluate $\displaystyle\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos x dx$

374. Evaluate $\displaystyle\int_0^1 x^2 e^x dx$

375. Evaluate $\int_0^{\frac{\pi}{2}} \sin x \cos x \, dx$

376. Evaluate $\int_3^7 \dfrac{1}{x^2 + 5x + 6} \, dx$

377. $\int_0^5 x^2 \, dx$

378. $\int_{-1}^1 \left(x^3 + 3x^2 + 2x \right) dx$

379. $\displaystyle\int_0^{\frac{\pi}{4}} \sec^2 x\,dx$

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

381. $\displaystyle\int_1^x \frac{1}{t}\,dt$

382. $\displaystyle\int_1^x \tan^{-1} x\,dx$

383. $\displaystyle\int_0^{\frac{\pi}{3}} e^{-x} \sin x \, dx$

384. Evaluate $\displaystyle\int_0^1 x\sqrt{1-x^2}\,dx$

385. Evaluate the following definite integrals $\displaystyle\int_0^1 \frac{x}{x^2+1}\,dx$

386. Evaluate $\displaystyle\int_1^2 \frac{\log(x+1)}{x+1}\,dx$

387. Evaluate $\displaystyle\int_0^{\frac{\pi}{2}} \sin^7 x\, dx$

388. Evaluate $\displaystyle\int_0^{\frac{\pi}{2}} \cos^5 x\, dx$

389. $\displaystyle\int_0^1 \frac{\left(\sin^{-1} x\right)^3}{\sqrt{1-x^2}}\, dx$

390. Evaluate $\displaystyle\int_{-\frac{\pi}{4}}^{\frac{\pi}{4}} \cos^7(2x)\,dx$

▶ Watch Video Solution

391. Evaluate $\displaystyle\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}}\,dx$

▶ Watch Video Solution

392. By using properties of definite integrals, evaluate the integrals $\displaystyle\int_{0}^{\pi} \frac{x}{1 + \sin x}\,dx$

▶ Watch Video Solution

393. Evaluate $\displaystyle\int_{0}^{\frac{\pi}{2}} \log(\tan x)\,dx$

394. Evaluate

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

395. $\int_{-\left(\frac{\pi}{2}\right)}^{\frac{\pi}{2}} x \sin x dx$

396. $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{1}{1 + \sqrt{\cot x}} dx$