9. ESERCIZI

CALCOLO DI INTEGRALI INDEFINITI

LIVELLO BASE

Calcola i seguenti integrali immediati:

1. $\int 4\,dx$ $[4x+k]$ $\int x^{-3}\,dx$ $\left[-\frac{x^{-2}}{2}+k\right]$

2. $\int x^2\,dx$ $\left[\frac{1}{3}x^3+k\right]$ $\int \frac{4}{x^2}dx$ $\left[-\frac{4}{x}+k\right]$

3. $\int 3x\,dx$ $\left[\frac{3}{2}x^2+k\right]$ $\int -\frac{3}{x^4}dx$ $\left[\frac{1}{x^3}+k\right]$

4. $\int 2x^3\,dx$ $\left[\frac{x^4}{2}+k\right]$ $\int \frac{2}{x}dx$ $[2ln|x|+k]$

5. $\int -6x^4\,dx$ $\left[-\frac{6}{5}x^5+k\right]$ $\int 3e^x\,dx$ $[3e^x+k]$

6. $\int 2\sqrt{x}\,dx$ $\left[\frac{4}{3}x\sqrt{x}+k\right]$ $\int 2senx\,dx$ $[-2cosx+k]$

7. $\int 2\sqrt[3]{x}\,dx$ $\left[\frac{3}{2}x\sqrt[3]{x}\right]$ $\int \frac{x}{\sqrt{x}}dx$ $\left[\frac{2}{3}x\sqrt{x}+k\right]$

8. $\int 4\sqrt[5]{x^3}\,dx$ $\left[\frac{5}{2}x\sqrt[5]{x^3}\right]$ $\int \frac{\sqrt[3]{x}}{x}dx$ $\left[3\sqrt[3]{x}+k\right]$

Utilizzando il metodo di integrazione per scomposizione calcola i seguenti integrali:

9. $\int (x-6)\,dx$ $\left[\frac{x^2}{2}-6x+k\right]$ $\int (x^3+2x)\,dx$ $\left[\frac{x^4}{4}+x^2+k\right]$

10. $\int \left(\frac{1}{x}-3x\right)dx$ $\left[ln|x|-\frac{3}{2}x^2+k\right]$ $\int \left(\frac{1}{x}+\frac{1}{x^2}\right)dx$ $\left[ln|x|-\frac{1}{x}+k\right]$

11. $\int (x^3-x^{-5})\,dx$ $\left[\frac{x^4}{4}+\frac{1}{4x^4}+k\right]$ $\int (x+4)^2\,dx$ $\left[\frac{x^3}{3}+4x^2+16x+k\right]$

12. $\int \left(\frac{x^2-25}{x+5}\right)dx$ $\left[\frac{x^2}{2}-5x+k\right]$ $\int -\sqrt{x}\,dx$ $\left[-\frac{2}{3}x\sqrt{x}+k\right]$

13. $\int 2x^3\,dx$ $\left[\frac{x^4}{2}+k\right]$ $\int \left(\frac{x^3-4x}{x}\right)dx$ $\left[\frac{x^3}{3}-4x+k\right]$

14. $\int (3x^4+1)\,dx$ $\left[\frac{3}{5}x^5+x+k\right]$ $\int \left(\frac{x^8-1}{x^2}\right)dx$ $\left[\frac{x^7}{7}+\frac{1}{x}+k\right]$

15. $\int \frac{\sqrt{x}}{2}dx$ $\left[\frac{1}{3}x\sqrt{x}+k\right]$ $\int 2cosx\,dx$ $[2senx+k]$

16. $\int \frac{\sqrt[3]{x}}{3}\,dx$ $\left[\frac{1}{4}x\sqrt[3]{x}+k\right]$ $\int \frac{5x}{\sqrt{x}}dx$ $\left[\frac{10}{3}x\sqrt{x}+k\right]$

17. $\int 4\sqrt[5]{x^2}\,dx$ $\left[\frac{20}{7}x\sqrt[5]{x^2}+k\right]$ $\int \frac{\sqrt[3]{x}}{3x}dx$ $\left[\sqrt[3]{x}+k\right]$

18. $\int \left(\frac{1}{\sqrt{x}}+e^x\right)dx$ $\left[2\sqrt{x}+e^x+k\right]$ $\int (2x^{-3}+x^3)\,dx$ $\left[-x^{-2}+\frac{x^4}{4}+k\right]$

19. $\int \left(\frac{2}{x}-\frac{3}{x^3}+5\right)dx$ $\left[2ln|x|+\frac{3}{2x^2}+5x+k\right]$

20. $\int (3^{x+2})\,dx$ $\left[\frac{9}{ln3}3^x+k\right]$

21. $\int e^x\cdot e^{-2x}\,dx$ $[-e^{-x}+k]$

22. $\int \frac{3^{2x}}{3^{x+1}}dx$ $\left[\frac{1}{3ln3}3^x+k\right]$

23. $\int \frac{27^x}{9^x}dx$ $\left[\frac{1}{ln3}3^x+k\right]$

24. $\int \frac{e^{4x}\cdot e^{3x}}{e^{6x}}dx$ $[e^x+k]$

25. $\int x(x-3)\,dx$ $\left[\frac{x^3}{3}-\frac{3}{2}x^2+k\right]$

26. $\int (x+4)(3-x)\,dx$ $\left[-\frac{x^3}{3}-\frac{x^2}{2}+12x+k\right]$

27. $\int \frac{2-xcosx}{x}dx$ $[2ln|x|-senx+k]$

28. $\int x^5+e^x-senx\,dx$ $\left[\frac{x^6}{6}+e^x+cosx+k\right]$

29. $\int \frac{e^{2x}+e^x}{e^x}dx$ $[e^x+x+k]$

30. $\int \left(\sqrt{9x}+\frac{3}{x}\right)dx$ $[2x\sqrt{x}+3ln|x|+k]$

31. $\int \frac{\sqrt[3]{x}+\sqrt{x}}{x}dx$ $[3\sqrt[3]{x}+2\sqrt{x}+k]$

32. $\int \frac{(x+3)^2}{x^2}dx$ $\left[x+6ln|x|-\frac{9}{x}+k\right]$

33. $\int \frac{9^x+6^x}{3^x}dx$ $\left[\frac{1}{ln3}3^x+\frac{1}{ln2}2^x+k\right]$

34. $\int \frac{x^3e^x-1}{x^3}dx$ $\left[e^x+\frac{1}{2x^2}+k\right]$

35. $\int \frac{x^2+3}{x^2+1}dx$ $[x+2artgx+k]$

36. $\int \frac{3x^2+5}{3x^2+3}dx$ $\left[x+\frac{2}{3}artgx+k\right]$

37. $\int \frac{x^3-8}{x-2}dx$ $\left[\frac{x^3}{3}+x^2+4x+k\right]$

38. $\int \frac{x-4}{\sqrt{x}-2}-dx$ $\left[\frac{2}{3}x\sqrt{x}+2x+k\right]$

39. $\int \frac{3}{x^2+1}dx$ $[3artgx+k]$

40. $\int \frac{4}{\sqrt{1-x^2}}dx$ $[4arsenx+k]$

41. $\int -\frac{1}{\sqrt{9-9x^2}}dx$ $\left[\frac{1}{3}arcosx+k\right]$

LIVELLO INTERMEDIO

Calcola l'integrale delle seguenti funzioni composte:

42. $\int 2(2x-3)^3\,dx$ $\left[\frac{(2x-3)^4}{4}+k\right]$

43. $\int (x-5)^4\,dx$ $\left[\frac{(x-5)^5}{5}+k\right]$

44. $\int (2-x)^6\,dx$ $\left[-\frac{(2-x)^7}{7}+k\right]$

45. $\int (3x-1)^3\,dx$ $\left[\frac{(3x-1)^4}{12}+k\right]$

46. $\int \left(\frac{1}{3}x-2\right)^4 dx$ $\left[\frac{3}{5}\left(\frac{1}{3}x-2\right)^5+k\right]$

47. $\int \frac{1}{(x+3)^3}dx$ $\left[-\frac{1}{2(x+3)^2}+k\right]$

48. $\int \frac{3}{(3x+1)^3}dx$ $\left[-\frac{1}{2(3x+1)^2}+k\right]$

49. $\int \frac{1}{(4x+2)^3}dx$ $\left[-\frac{1}{8(4x+2)^2}+k\right]$

50. $\int \frac{2}{(5x+3)^2}dx$ $\left[-\frac{2}{5(5x+3)}+k\right]$

51. $\int \frac{1}{(4-x)^3}dx$ $\left[\frac{1}{2(4-x)^2}+k\right]$

52. $\int \frac{2x}{(x^2+3)^3}dx$ $\left[-\frac{1}{2(x^2+3)^2}+k\right]$

53. $\int \frac{x^2}{(x^3-1)^3}dx$ $\left[-\frac{1}{6(x^3-1)^2}+k\right]$

54. $\int \sqrt{2x+1}\,dx$ $\left[\frac{1}{3}\sqrt{(2x+1)^3}+k\right]$

55. $\int \frac{1}{\sqrt{4x+1}}dx$ $\left[\frac{1}{2}\sqrt{4x+1}+k\right]$

56. $\int \frac{x}{\sqrt{x^2+2}}dx$ $\left[\sqrt{x^2+2}+k\right]$

57. $\int x\sqrt{x^2+1}\,dx$ $\left[\frac{1}{3}\sqrt{(x^2+1)^3}+k\right]$

58. $\int \frac{\ln^2 x}{x}dx$ $\left[\frac{1}{3}\ln^3 x+k\right]$

59. $\int e^x(1-e^x)\,dx$ $\left[e^x\left(1-\frac{1}{2}e^x\right)+k\right]$

60. $\int cosx\ sen^3x dx$ $\left[\frac{1}{4}sen^4x+k\right]$

61. $\int \frac{\sqrt[3]{\ln^2 x}}{2x}dx$ $\left[\frac{3}{10}\sqrt[3]{\ln^5 x}+k\right]$

62. $\int 3e^{3x}dx$ $[e^{3x}+k]$

63. $\int e^{-2x}dx$ $\left[-\frac{1}{2}e^{-2x}+k\right]$

64. $\int e^{1-3x}dx$ $\left[-\frac{1}{3}e^{1-3x}+k\right]$

65. $\int 3e^{\frac{1}{4}x}dx$ $\left[12e^{\frac{1}{4}x}+k\right]$

66. $\int 2xe^{3x^2}dx$ $\left[\frac{1}{3}e^{3x^2}+k\right]$

67. $\int cosx\ e^{senx}dx$ $[e^{senx}+k]$

68. $\int \frac{2e^{\sqrt{x}}}{\sqrt{x}}dx$ $\left[4e^{\sqrt{x}}+k\right]$

69. $\int \frac{e^{\frac{3}{x}}}{x^2}dx$ $\left[-\frac{1}{3}e^{\frac{3}{x}}+k\right]$

70. $\int \frac{2}{x+1}dx$ $[2ln|x+1|+k]$

71. $\int \frac{2}{2x+3}dx$ $[ln|2x+3|+k]$

72. $\int \frac{3}{5x+1}dx$ $\left[\frac{3}{5}ln|5x+1|+k\right]$

73. $\int \frac{2x}{x^2+4}dx$ $[ln(x^2+4)+k]$

74. $\int \frac{x}{5x^2+9}dx$ $\left[\frac{1}{10}ln(5x^2+9)+k\right]$

75. $\int \frac{2x+3}{x^2+3x}dx$ $[ln|x^2+3x|+k]$

76. $\int \frac{7x^2}{x^3+1}dx$ $\left[\frac{7}{3}ln|x^3+1|+k\right]$

77. $\int \frac{3e^x}{e^x+1}dx$ $[3ln(e^x+1)+k]$

78. $\int \frac{sen2x}{sen^2x+1}dx$ $[ln(sen^2x+1)+k]$

79. $\int 2sen4xdx$ $\left[-\frac{1}{2}cos4x+k\right]$

80. $\int \frac{1}{xlnx}dx$ $[ln|lnx|+k]$

Calcola i seguenti integrali utilizzando il metodo dell'integrazione per parti:

81. $\int lnxdx$ $[x(lnx-1)+k]$

82. $\int xlnxdx$ $\left[\frac{x^2}{2}\left(lnx-\frac{1}{2}\right)+k\right]$

83. $\int x^2lnxdx$ $\left[\frac{x^3}{3}\left(lnx-\frac{1}{3}\right)+k\right]$

84. $\int \frac{lnx}{x^2}dx$ $\left[-\frac{1}{x}(lnx+1)+k\right]$

85. $\int xln3xdx$ $\left[\frac{1}{2}x^2ln3x-\frac{1}{4}x^2+k\right]$

86. $\int xe^xdx$ $[e^x(x-1)+k]$

87. $\int x^2\,e^xdx$ $[e^x(x^2-2x+2)+k]$

88. $\int xe^{2x+1}dx$ $\left[\frac{1}{4}e^{2x+1}(2x-1)+k\right]$

89. $\int xsenxdx$ $[(-xcosx+senx)+k]$

90. $\int xcosxdx$ $[(xsenx + cosx) + k]$

Calcola gli integrali delle funzioni razionali fratte:

91. $\int \frac{x^4 - x - 3}{x^2 + 1} dx$ $\left[\frac{x^3}{3} - x - \frac{1}{2}\ln(x^2 + 1) - 2artgx + k\right]$

92. $\int \frac{x^3 + 2x^2 - x - 1}{2x^2 - 1} dx$ $\left[\frac{1}{4}x^2 + x - \frac{1}{8}\ln|2x^2 - 1| + k\right]$

93. $\int \frac{x^3 - 1}{x + 2} dx$ $\left[\frac{1}{3}x^3 - x^2 + 4x - 9\ln|x + 2| + k\right]$

94. $\int \frac{x^4 - x^2 + 1}{x + 1} dx$ $\left[\frac{1}{4}x^4 - \frac{1}{3}x^3 + \ln|x + 1| + k\right]$

95. $\int \frac{x^4 - 3x^2 + 1}{x^2 + 4} dx$ $\left[\frac{1}{3}x^3 - 7x + \frac{29}{2}artg\frac{x}{2} + k\right]$

96. $\int \frac{x^2 - 1}{x^2 + 1} dx$ $[x - 2artgx + k]$

97. $\int \frac{x^3 - 4x^2 - 1}{x^3 - 1} dx$ $\left[x - \frac{4}{3}\ln|x^3 - 1| + k\right]$

98. $\int \frac{3x^2 + 4}{x^2 + 1} dx$ $[3x + artgx + k]$

99. $\int \frac{12x^4 + 3x^2 + 1}{4x^2 + 1} dx$ $\left[x^3 + \frac{1}{2}artg2x + k\right]$

100. $\int \frac{2x^3 + 18x^2 + 1}{x^2 + 9} dx$ $\left[x^2 + 18x - \frac{161}{3}artg\frac{x}{3} - 9\ln(x^2 + 9) + k\right]$

101. $\int \frac{3}{(x - 2)(x + 1)} dx$ $[ln|x - 2| - ln|x + 1| + k]$

102. $\int -\frac{1}{(2x - 1)(x - 1)} dx$ $[ln|2x - 1| - ln|x - 1| + k]$

103. $\int \frac{1}{x^2 - 2x} dx$ $\left[-\frac{1}{2}ln|x| + \frac{1}{2}ln|x - 2| + k\right]$

104. $\int \frac{1}{x^2 + 3x + 2} dx$ $[ln|x + 1| - ln|x + 2| + k]$

105. $\int \frac{1}{3x^2 + x - 2} dx$ $\left[\frac{1}{5}ln|3x - 2| - \frac{1}{5}ln|x + 1| + k\right]$

106. $\int \frac{1}{x^2 + 4x + 4} dx$ $\left[-\frac{1}{x + 2} + k\right]$

107. $\int \frac{x - 2}{x^2 - 6x + 9} dx$ $\left[ln|x - 3| - \frac{1}{x - 3} + k\right]$

108. $\int \frac{1}{x^2-6x+10}dx$ $[artg(x-3)+k]$

109. $\int \frac{1}{x^2+2x+2}dx$ $[artg(x+1)+k]$

110. $\int \frac{x}{x^2-5x+6}dx$ $[3ln|x-3|-2ln|x-2|+k]$

111. $\int \frac{x+1}{x^2-4}dx$ $\left[\frac{3}{4}ln|x-2|+\frac{1}{4}ln|x+2|+k\right]$

112. $\int \frac{2x+5}{2x^2+5x-12}dx$ $\left[\frac{8}{11}ln|2x-3|+\frac{3}{11}ln|x+4|+k\right]$

113. $\int \frac{5x+2}{x^2+x+1}dx$ $\left[\frac{5}{2}ln(x^2+x+1)-\frac{\sqrt{3}}{3}artg\frac{2x+1}{\sqrt{3}}+k\right]$

114. $\int \frac{3x+1}{4x^2-4x+1}dx$ $\left[\frac{3}{4}ln|2x-1|-\frac{5}{4(2x-1)}+k\right]$

LIVELLO AVANZATO

Riepilogo integrali indefiniti:

115. $\int \left(x^3-2x^4+e^{3x}-\frac{1}{3x^5}\right)dx$ $\left[\frac{1}{3}e^{3x}-\frac{2}{5}x^5+\frac{x^4}{4}+\frac{1}{12x^4}+k\right]$

116. $\int x^3e^{3x^4}dx$ $\left[\frac{1}{12}e^{3x^4}+k\right]$

117. $\int \frac{ln^3x}{2x}dx$ $\left[\frac{1}{8}ln^4x+k\right]$

118. $\int \frac{senx}{cosx}dx$ $[-ln|cosx|+k]$

119. $\int 2lnxdx$ $[2x(lnx-1)+k]$

120. $\int x^3e^xdx$ $[e^x(x^3-3x^2+6x-6)+k]$

121. $\int \frac{6x-6}{x^2-2x-3}dx$ $[3ln|x^2-2x-3|+k]$

122. $\int (x^2-3x)^5(2x-3)dx$ $\left[\frac{1}{6}(x^2-3x)^6+k\right]$

123. $\int \frac{x^3+1}{x^2-x-2}dx$ $\left[\frac{x^2}{2}+x+3ln|x-2|+k\right]$

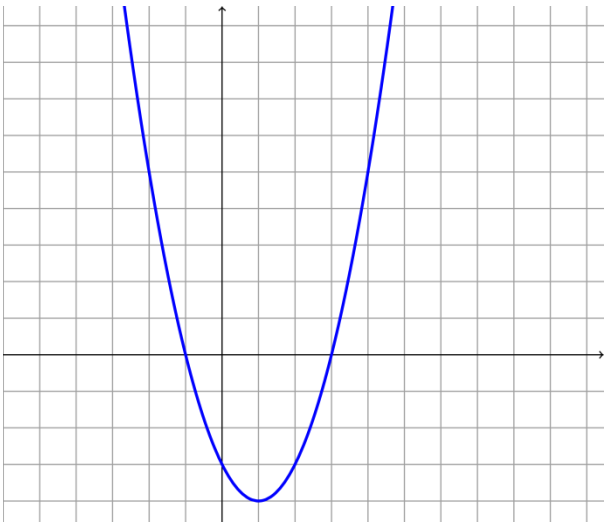
124. $\int \frac{x+1}{x^2-4x+4}dx$ $\left[ln|x-2|-\frac{3}{x-2}+k\right]$

125. $\int \frac{1}{x^2-4x+5}dx$ $[artg(x-2)+k]$

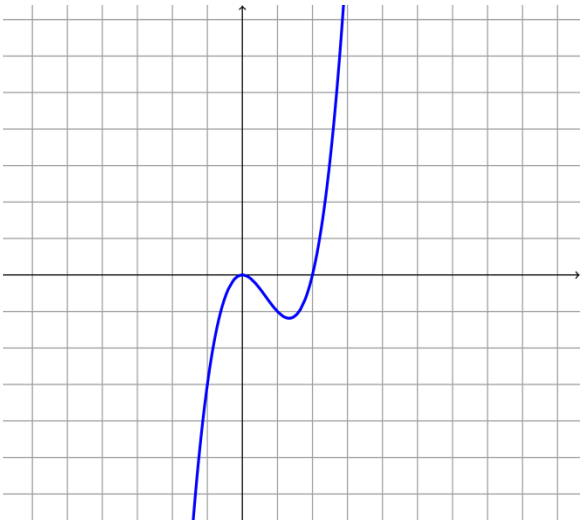
126. $\int \frac{x+1}{x^2-4x+3}dx$ $\left[ln\frac{(x-3)^2}{x-1}+k\right]$

Partendo dal grafico di $f(x)$ rappresenta quello $F(x)$:

127.



128.



INTEGRALI DEFINITI E CALCOLO DI AREE

LIVELLO BASE

Calcola i seguenti integrali definiti:

129. $\int_{-2}^{2} x^2dx$ $\left[\frac{16}{3}\right]$ $\int_{0}^{2} 3x^3dx$ $[12]$

130. $\int_{-1}^{2} (x-1)dx$ $\left[-\frac{3}{2}\right]$ $\int_{-1}^{1} (4-3x)dx$ $[8]$

131. $\int_{-1}^{2} (x^2-1)dx$ $[0]$ $\int_{-2}^{0} (1-x^2)dx$ $\left[-\frac{2}{3}\right]$

132. $\int_{0}^{\frac{1}{2}} \left(x^2-\frac{2}{3}x+2\right)dx$ $\left[\frac{23}{24}\right]$ $\int_{1}^{2} \left(x^2+\frac{1}{x^2}\right)dx$ $\left[\frac{17}{6}\right]$

133. $\int_1^2 \frac{1}{x}dx$ $[ln2]$ $\int_{-2}^4 (x^4 - 3x^2 + x + 1)dx$ $\left[\frac{756}{5}\right]$

134. $\int_{-2}^2 x^2 dx$ $\left[\frac{16}{3}\right]$ $\int_0^1 \sqrt{x}dx$ $\left[\frac{2}{3}\right]$

135. $\int_2^4 \frac{1}{x^2}dx$ $\int_1^3 \frac{1}{x^4}dx$

136. $\int_1^5 (x^2 - 4x + 1)dx$ $\int_0^2 \frac{x+1}{x-2}dx$

137. $\int_{-3}^4 (x+3)^2 dx$ $\int_1^3 \frac{x^2-1}{x}dx$

138. $\int_0^3 \frac{1}{x+1}dx$ $\int_3^8 \frac{x}{\sqrt{x^2-4}}dx$

139. $\int_{-2}^0 \frac{x^3}{x^4+2}dx$ $\int_0^1 \frac{e^x}{e^x+3}dx$

140. $\int_{-2}^2 \frac{x}{x^2+1}dx$ $\int_0^3 \frac{x}{x+3}dx$

141. $\int_2^4 \frac{3}{(x+3)^2}dx$ $\int_{-2}^3 \left(x^2 - \frac{1}{x^2} - \frac{1}{x^3}\right)dx$

142. $\int_2^5 \frac{1}{\sqrt{x+3}}dx$ $\int_{-3}^2 \frac{(x-1)^2}{x^2}dx$

143. $\int_2^6 \frac{1}{\sqrt[3]{x}}dx$ $\int_{-5}^0 \sqrt[3]{1-3x}dx$

144. $\int_0^3 x(x^2-1)^3 dx$ $\int_1^4 \left(-x^3 + \frac{3}{x^2} - e^{3x}\right)dx$

145. $\int_3^9 3x\sqrt[3]{x^2-3}dx$ $\int_2^4 3xe^{3x^2-2}dx$

146. $\int_{-2}^0 \frac{2-x}{x^2-4x+3}dx$ $\int_{-4}^3 \left(e^{-\frac{2}{3}x} - 5\right)dx$

147. $\int_{-3}^2 xe^x dx$ $\int_5^8 \frac{1}{x^2-5x-6}dx$

148. $\int_{-3}^2 x\sqrt{x^2-3}dx$ $\int_{-2}^2 x(2x^2-5)\text{^}3dx$

149. $\int_0^6 (x - e^{2x})dx$ $\int_0^1 x^2 e^x dx$

150. $\int_2^5 \frac{1}{xln^2 x}dx$ $\int_1^3 xlnxdx$

151. $\int_0^3 (3\sqrt{x} + 4x)dx$ $\int_2^4 \frac{3-x}{x^2-2x+1}dx$

152. $\int_{-1}^1 (2x - \sqrt[3]{x})dx$ $\int_1^9 \frac{\ln^3 x}{x}dx$

153. $\int_0^{\frac{\pi}{4}} \frac{x}{sen^2 x}dx$ $\int_0^{\frac{\pi}{4}} x^4 senx^5 dx$

154. $\int_0^{\pi} senx$ $\int_{\frac{\pi}{6}}^{\frac{\pi}{2}} \frac{cosx}{sen^2 x}dx$

155. $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} cosxdx$ $\int_0^{\frac{\pi}{4}} \frac{1}{x^2+1}dx$

LIVELLO INTERMEDIO

Calcola l'area delle superfici delimitate dall'asse x e dal grafico delle seguenti funzioni definite negli intervalli indicati:

156. $y = x^3 - 2$ $[0,3]$

157. $y = x^2 - 5x - 6$ $[-3,2]$

158. $y = \frac{2}{x}$ $[2,6]$

159. $y = \frac{x^2 - x - 2}{x}$ $[-3,-1]$

160. $y = e^x - 1$ $[-2,1]$

161. $y = lnx - 1$ $[1,2]$

162. $y = \sqrt{x+2}$ $[-1,1]$

163. $y = x^3 - 2x + 1$ $[-1,1]$

164. $y = e^{x^2-1}$ $[0,1]$

165. $y = xe^x$ $[0,1]$

166. $y = xlnx$ $[1,4]$

Determina l'area della superficie racchiusa dalle funzioni di equazioni:

167. $y = 2x + 2$ $y = x^2 - 2x - 3$

168. $y = -x + 1$ $y = x^2$

169. $y = -x^2 - 3x + 4$ $\quad y = x$

170. $y = x^2 - 2x + 1$ $\quad y = 2x$

171. $y = -x^2 - 3x - 4$ $\quad y = x^2 - 4$

172. $y = x^3$ $\quad y = -x^2 + 4x + 4$

173. $y = -2x^2 - 2x - 4$ $\quad y = 2x^2 + 2x - 4$

174. $y = -x^2 + 4x$ $\quad y = x^2 - 4$

175. $y = e^x$ $\quad y = -x + 1$

176. $y = \frac{1}{x}$ $\quad y = -x + 4$

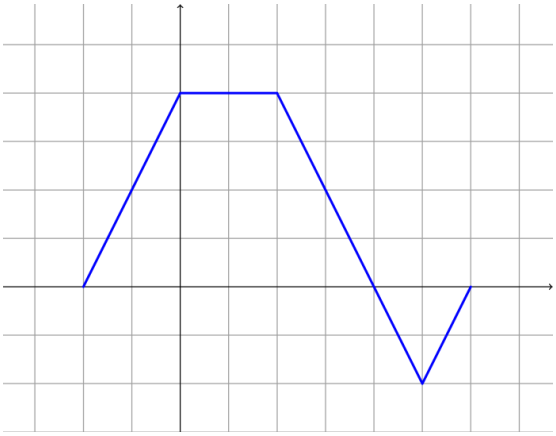
177. $y = x^2 + 1$ $\quad y = -x^2 + 4$

178. $y = \sqrt{x}$ $\quad y = x$

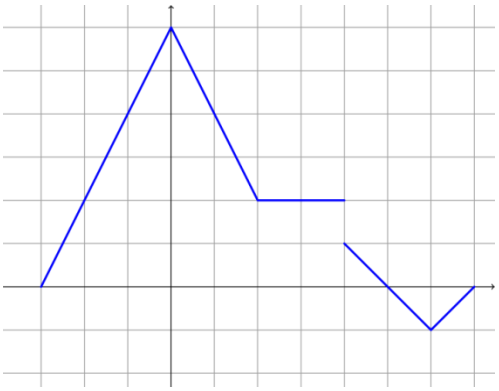
LIVELLO AVANZATO

Calcola l'area delle funzioni rappresentate in figura

179.



180.



181. Determina la funzione del costo medio sapendo che la funzione del costo marginale è $C'(x) = 2x^2 - 5x + 9$ e che i costi fissi sono 50.

182. Determina la funzione del ricavo totale sapendo che il ricavo marginale è $R'(x) = 25 - 3x$ e che $R(0) = 0$.

183. Determina la funzione del ricavo totale sapendo che il ricavo marginale è $R'(x) = 8 - 2x$ e che $R(0) = 0$.