

Luis Ricardo Reyes Villar
04/03/2022

21070343

1. Dadas las funciones calcula las sumatorias correspondientes.
 $a=0$ $b=3$ $c=4$ $d=3$

$$f(x) = (a+1)x^2 + (b+1)x + c = f(x) = x^2 + 4x + 4$$

$$g(x) = (d+1)x + c = g(x) = 4x + 4$$

$$\sum_{i=a}^{a+1} (f(i) + g(i))^2 =$$

$$\sum_{i=0}^1 (f(i) + g(i))^2 = (f(0) + g(0))^2 + (f(1) + g(1))^2 = (4+4)^2 + (9+8)^2 = 8^2 + 17^2 = 64 + 289 = \underline{\underline{353}}$$

$$f(0) = 0^2 + 4(0) + 4 = 4$$

$$f(1) = 1^2 + 4(1) + 4 = 1 + 4 + 4 = 9$$

$$g(0) = 4(0) + 4 = 4$$

$$g(1) = 4(1) + 4 = 8$$

11. Resuelve las siguientes integrales definidas

$$\int_a^{a+1} \frac{(x^{c+1} + x^{d+1})}{x^{b+1}} dx =$$

$$\int_0^1 \frac{(x^5 + x^4)}{x^4} dx = x^1 + 1 dx = \frac{x^2}{2} + x \Big|_0^1 =$$

$$\left(\frac{1^2}{2} + 1\right) - \left(\frac{0^2}{2} + 0\right) = \frac{1}{2} + 1 = \underline{1.5}$$

$$\int_a^{a+1} \frac{(c^{+1}\sqrt{x^{a+1}} + x^{b+1})}{\sqrt{x^{d+1}}} dx = \int_0^{0+1} \frac{(\frac{4+1}{4}\sqrt{x^{0+1}} + x^{3+1})}{\sqrt{x^{3+1}}} dx =$$

$$\int_0^1 \frac{(\frac{5}{4}\sqrt{x} + x^4)}{\sqrt{x^4}} dx = \frac{(x^{\frac{1}{5}} + x^4)}{x^2} dx = (x^{-\frac{9}{5}} + x^2) dx =$$

$$\frac{x^{-\frac{9}{5}+1}}{-\frac{9}{5}+1} + \frac{x^{2+1}}{2+1} = \frac{x^{-\frac{4}{5}}}{-\frac{4}{5}} + \frac{x^3}{3} = -\frac{5}{4}x^{-\frac{4}{5}} + \frac{x^3}{3} \Big|_0^1 =$$

$$-\frac{5}{4} \frac{1}{x^{\frac{4}{5}}} + \frac{x^3}{3} = -\frac{5}{4x^{\frac{4}{5}}} + \frac{x^3}{3} \Big|_0^1 =$$

$$-\frac{5}{4(1)^{\frac{4}{5}}} + \frac{1^3}{3} - \left(-\frac{5}{4(0)^{\frac{4}{5}}} + \frac{0^3}{3} \right) = -\frac{5}{4} + \frac{1}{3} + \frac{5}{0} - 0$$

↓
Indefinido

Resultado Indefinido