

Exercícios

Calcule as integrais abaixo (com n=6 subintervalos):

1) $I = \int_1^{2,8} e^{-x} dx$ R: **I = 0,309369.**

2) $I = \int_{0,5}^2 \sqrt{1 + \text{sen } x} dx$..

3) $I = \int_0^{1,2} \cos^2 x dx$.

4) $I = \int_0^{\pi/3} \text{sen}^2 x dx$.

5) $I = \int_0^1 e^{-x^2} dx$

Formulário

$$h = \frac{X_n - X_0}{n}$$

$$S = \frac{h}{2} \left[f(x_0) + 2 \cdot \sum_{i=1}^{n-1} f(x_i) + f(x_n) \right]$$

$$S = \frac{h}{3} \left[f(x_0) + 4 \cdot \sum_{(\text{ímpar}) i=1}^{n-1} f(x_i) + 2 \cdot \sum_{(\text{par}) i=2}^{n-2} f(x_i) + f(x_n) \right]$$

$$S = \frac{3h}{8} \left[f(x_0) + 3 \cdot \left[\sum_{(\text{não mult. de } 3) i=1}^{n-1} f(x_i) \right] + 2 \cdot \left[\sum_{(\text{mult. de } 3) i=2}^{n-3} f(x_i) \right] + f(x_n) \right]$$

i	x _i	f(x _i)	
0			
1			
2			
3			
4			
5			
6			

x _i	f(x _i)	

Exercício 1)

h = 0,3

x ₀	1	0,367879	×1	0,367879
x ₁	1,3	0,272532	×2	0,545064
x ₂	1,6	0,201897	×2	0,403793
x ₃	1,9	0,149569	×2	0,299137
x ₄	2,2	0,110803	×2	0,221606
x ₅	2,5	0,082085	×2	0,164170
x ₆	2,8	0,060810	×1	0,060810

2,06246

I = 0,309369

“Exato” I = 0,307069