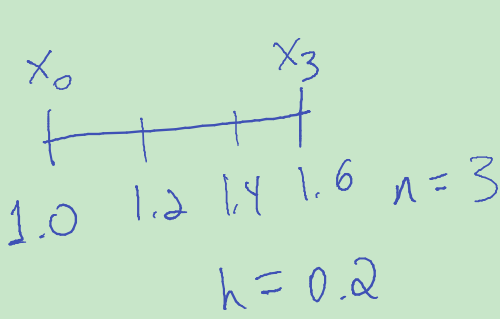


$$(10.23)_4 > 4 \times 1 + 1 \times 0 + 4^1 \times 2 + 4^0 \times 3$$

Casas decimais vs signif.

$$0.000123 = 1.23 \times 10^{-4}$$

x	1.000	1.200	1.300	1.400	1.600
\sqrt{x}	1.000	1.095	1.140	1.183	1.265



$$\int_1^{1.6} \sqrt{x} dx \approx \frac{h}{2} \left[f(x_0) + 2 \sum_{i=1}^{n-1} f(x_i) + f(x_n) \right]$$

$$\approx \frac{0.2}{2} \times [1.000 + 2 \times (1.095 + 1.183) + 1.265]$$

$$\approx 0.682$$

$$\int \sqrt{x} dx = \int x^{1/2} dx = \frac{x^{3/2}}{3/2} = \frac{2}{3} x^{3/2}$$

$$\int_1^{1.6} \sqrt{x} dx = \frac{2}{3} \left[1.6^{3/2} - 1 \right] \approx 0.683$$

$$E = - \frac{f''(\mu) h^2 (b-a)}{12}$$

$$\begin{aligned} f(x) &= \sqrt{x} \\ f'(x) &= \frac{1}{2} x^{-1/2} \end{aligned} \quad \left| \quad \begin{aligned} f''(x) &= -\frac{1}{4} x^{-3/2} \end{aligned} \right.$$

$$|E| = \frac{0.2^2}{12} \cdot (1.6-1) \cdot |f''(\mu)|$$

$$|f''(x)| = \frac{1}{4} \left| \frac{1}{x^{3/2}} \right|$$

$$\leq \frac{0.2^2}{12} \times 0.6 \times \max_{\mu \in [1,1.6]} |f''(\mu)|$$

$$= \frac{0.04}{12} \times 0.6 \times \frac{1}{4} = \frac{0.024}{48} = \frac{0.02}{4} = 0.005$$

$$E = 0.683 - 0.682 = 0.001 \quad \text{é realmente maior que o lim.}$$

$$4x(1-x), \quad x \in [0,1]$$

$$\max |x^3(x-1)^4(x-2)^7(x-3)^8| \leq \max x^3 \cdot \max |x-1|^4 \dots$$

Qual o nº de pontos p/ erro $< 10^{-5}$

$$|E| = \left| - \frac{h^2(b-a)}{12} f''(\mu) \right| < 10^{-5} ?$$

#Fórmula Do Erro

$$\leq \frac{h^2(b-a)}{12} \max_{\mu \in [1,1.6]} |f''(\mu)|$$

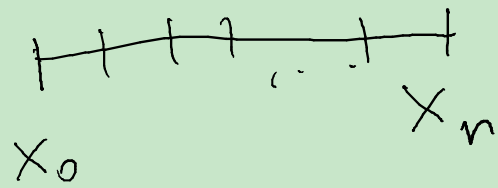
#Menor

$$\frac{h^2(1.6-1)}{12} \cdot \frac{1}{4} < 10^{-5} \Rightarrow h < \sqrt{\frac{48 \times 10^{-5}}{0.6}}$$

$$h = \frac{b-a}{n}$$

$$n > \left(\sqrt{\frac{48 \times 10^{-5}}{0.6}} \right)^{-1} \times (1.6-1) \approx 21.2$$

$$\boxed{n=22} \quad 23 \text{ pontos}$$



$f(x) = x^2 - 2$	6 dig. sig	$f(a)$	$f(b)$	x	$f(x)$
a	b				
1.41000	1.42000	-1.19000×10^{-2}	1.64000×10^{-2}	1.41500	2.22500×10^{-3}
1.41000	1.41500	-1.19000×10^{-2}	2.22500×10^{-3}	1.41250	-4.84375×10^{-3}

$$f(x) = x^2 - 2, \quad x_0 = 1.41000$$

$$f'(x) = 2x$$

$$x_{k+1} = x_k - \frac{f(x_k)}{f'(x_k)}$$

k	x	f(x)	f'(x)
0	1.41000	-1.19000×10^{-2}	2.82000
1	1.41422	1.82084×10^{-5}	2.82844
2	1.41421	-1.00759×10^{-5}	2.82842