$(10.23)_4 > 4\times1 + 1\times0 + 4^{-1}\times2 + 4^{-2}\times3$

$4 \; 1 \; 4^{-1} \; 4^{-2}$

Casas decimais vs signif.

$0.000123 = 1.23\times10^{-4}$

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

x_0 x_3

1.0 1.2 1.4 1.6 $n=3$

$h = 0.2$

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

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

$$\approx 0.682$$

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

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

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

$f(x) = \sqrt{x}$

$f'(x) = \frac{1}{2}x^{-1/2}$

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

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

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

$$\leq \frac{0.2^2}{12}\times0.6\times\max_{\mu\in[1,1.6]}|f''(\mu)|$$

$$= \frac{0.04}{12}\times0.6\times\frac{1}{4} = \frac{0.024}{\cancel{4\times12}} = \frac{0.02}{4} = \underline{0.005}$$

$\epsilon = 0.683 - 0.682 = 0.001$ é realmente menor que o lim.

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

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

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

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

#Precisão

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

#Menor

$$\frac{h^2(1.6-1)}{12}\frac{1}{4} < 10^{-5} \Rightarrow h < \sqrt{\frac{48\times10^{-5}}{0.6}}$$

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

$$n > \left(\sqrt{\frac{48\times10^{-5}}{0.6}}\right)^{-1}\times\overset{1.6-1}{(b-a)} \approx 21.2$$

$\boxed{n=22}$ 23 pontos

x_0 x_n

$f(x) = x^2 - 2$ 6 dig. ~~sig~~

a	b	f(a)	f(b)	x	f(x)
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}

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

$f'(x) = 2x$

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

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