Taller 11

1.) $\tilde{x} = 1,25 \quad \Delta\tilde{x} = 0,05 \quad x \in [1,2 \ , \ 1,3]$

$F(x) = 1,1x^4 - 2,2x^3 + 0,7x^2 - 2x + 2$

$F'(x) = \dfrac{22x^3 - 33x^2 + 7x - 10}{5}$

$\Delta F(\tilde{x}) = \left| \dfrac{22(1,25)^3 - 33(1,25)^2 + 7(1,25) - 10}{5} \right| \cdot 0,05$

$\Delta F(\tilde{x}) = 0,0984375$

$F(\tilde{x}) = F(1,25) = 1,1(1,25)^4 - 2,2(1,25)^3 + 0,7(1,25)^2 - 2(1,25) + 2$

$= -1,01757812 \rightarrow$ Valor Aprx

$\rightarrow$ Error aprox

$F(x) \in [-1,11601562 \ , \ -0,91911406]$

2. $\tilde{x} = \pi/3 \quad \Delta\tilde{x} = 0,005 \quad x \in [1,04219 \ , \ 1,05219]$

$F(x) = \cos(x) \cdot \ln(2x)$

$F'(x) = \dfrac{\cos(x)}{x} - \operatorname{sen}(x) \cdot \ln(2x)$

$\Delta F(\tilde{x}) = \left| \dfrac{\cos(\pi/3)}{\pi/3} - \operatorname{sen}(\pi/3) \cdot \ln(2 \cdot \pi/3) \right| \cdot 0,005$

$= 0,00081378$

$F(\tilde{x}) = F(\pi/3) = \cos(\pi/3) \cdot \ln(2 \cdot \pi/3)$

$= 0,3696323 \rightarrow$ Valor aprox

Error Aprox

$F(x) \in [0,368818 \ , \ 0,37044608]$