Taller 11

1. $\tilde{x} = 1,25 \qquad \Delta\tilde{x} = 0,05$

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

$f'(x) = 4,4x^3 - 6,6x^2 + 1,4x - 2$

$f(\tilde{x}) = f(1,25) = -1,017578125 \rightarrow$ valor aprox.

$\Delta f(\tilde{x}) = |4,4(1,25)^3 - 6,6(1,25)^2 + 1,4(1,25) - 2| \times 0,05 = 0,0984375$

Error aprox.

$f(x) \in [f(\tilde{x}) - \Delta f(\tilde{x}) \; , \; f(\tilde{x}) + \Delta f(\tilde{x})]$

$f(x) \in [-1,116016 \; , \; -0,919140]$

2. $\tilde{x} = \pi/3 \qquad \Delta\tilde{x} = 0,005$

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

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

$f(\tilde{x}) = f(\pi/3) = 0,3696323889 \rightarrow$ valor aprox.

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

$= 0,0008137862\overline{42} \rightarrow$ Error aprox.

$f(x) \in [f(\tilde{x}) - \Delta f(\tilde{x}) \; , \; f(\tilde{x}) + \Delta f(\tilde{x})]$

$f(x) \in [0,3688186027 \; , \; 0,3704461751]$