Taller 11

- $\tilde{x} = 1,25$ $\quad f(x) = 1,1x^4 - 2,2x^3 + 0,7x^2 - 2x + 2$
  $E_a = 0,05$ $\quad f'(x) = 4,4x^3 - 6,6x^2 + 1,4x - 2$

$x_t \in |\tilde{x} - \Delta\tilde{x}, \tilde{x} + \Delta\tilde{x}|$
$x_t \in |1,2, 1,3|$

$f(x_t) = ?$

$\Delta f(\tilde{x}) \approx |4,4(1,25)^3 - 6,6(1,25)^2 + 1,4(1,25) - 2| \cdot 0,05 = 0,0984375$
$f(\tilde{x}) \approx 1,1(1,25)^4 - 2,2(1,25)^3 + 0,7(1,25)^2 - 2(1,25) + 2 \approx -1,017578125$
$f(x_t) \in [-1,017578 - 0,0984375, -1,017578 + 0,0984375]$
$f(x_t) \in [-1,116015625, -0,919140625]$

- $\tilde{x} = \tilde{\pi}/3$ $\quad f(x) = \cos(x) \cdot \ln(2x)$
  $E_a = 0,005$ $\quad f'(x) = -\text{Sen}(x)\ln(2x) + \frac{\cos(x)}{x}$

$f(x_t) = ?$

$\Delta f(\tilde{x}) \approx |-\text{Sen}(\tilde{\pi}/3)\ln(2\tilde{\pi}/3) + \frac{\cos(\tilde{\pi}/3)}{\tilde{\pi}/3}| \cdot 0,005 = 0,000813786294$

$f(\tilde{x}) \approx \cos(\tilde{\pi}/3) \cdot \ln(2(\tilde{\pi}/3)) = 0,3696323889$

$f(x_t) \in [0,3696323889 - 0,000813786294, 0,3696323889 + 0,000813786294]$
$f(x_t) \in [0,3614995265, 0,3777752513]$