taller 11

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

$x \in [1,20; 1,30]$

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

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

$\Delta f(x) = |4,4(1,25^3) - 6,6(1,25^2) + 1,4(1,25) - 2| \cdot 0,05$

$= 0,964375$

$f(1) = 1,1(1,25^4) - 2,2(1,25^3) + 0,7(1,25^2) - 2(1,25) + 2$

$= -9,611328$

$f(x) \in [-10,595703; -8,626953]$

b) $\tilde{x} = \pi/3$ $\quad \Delta x = 0{,}005$ $\quad x \in [1{,}04219;\ 1{,}03219]$

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

$$f'(x) = -\operatorname{sen}(x) \cdot \ln(2x) + \cos(x) \cdot \frac{1}{x}$$

$$\Delta f(x) = \left| -\operatorname{sen}(x) \cdot \ln(2x) + \cos(x) \cdot \frac{1}{x} \right| \cdot 0{,}005$$

$$= 8{,}137862 \times 10^{-4}$$

$$f(\pi/3) = \cos(x) \cdot \ln(2x)$$

$$= 0{,}36963$$

$$f(x) \in [0{,}368816;\ 0{,}370449]$$