

Ejercicio 1

$$\tilde{x} = 1.5$$

$$\varepsilon_a = 3.3\%$$

$$\Delta\tilde{x} = 0.05$$

$$x \in [\tilde{x} - \Delta\tilde{x}, \tilde{x} + \Delta\tilde{x}]$$

$$x \in [1.5 - 0.05, 1.5 + 0.05]$$

$$x \in [1.45, 1.55]$$

Tomo \tilde{x} y lo aplico a la función $f(x) = 1,25x^4 - x^3 + 1,5x^2 - 2x + 4,5$

$$\Delta f(1.5) = |5(1.5)^3 - 3(1.5)^2 + 3(1.5) - 2| * 0.05$$

$$\Delta f(1.5) = |12.625| * 0.05$$

$$\Delta f(1.5) = 0.63125$$

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

$$f(x) \in [1,25(1.5)^4 - (1.5)^3 + 1,5(1.5)^2 - 2(1.5) + 4,5 - 0.63125,$$

$$1,25(1.5)^4 - (1.5)^3 + 1,5(1.5)^2 - 2(1.5) + 4,5 + 0.63125]$$

$$f(x) \in [7.828125 - 0.63125, 7.828125 + 0.63125]$$

$$f(x) \in [7.196875, 8.459375]$$

Ejercicio 1

$$\tilde{x} = \pi/4$$

$$\varepsilon_a = 6.366\%$$

$$\Delta\tilde{x} = 0.005$$

$$x \in [\tilde{x} - \Delta\tilde{x}, \tilde{x} + \Delta\tilde{x}]$$

$$x \in [\pi/4 - 0.005, \pi/4 + 0.005]$$

$$x \in [0.780398, 0.790398]$$

Tomo \tilde{x} y lo aplico a la función $f(x) = \cos(x) * \ln(2x)$

$$\Delta f(\pi/4) = \left| -\sin(\pi/4) * (\ln(2) + \ln(\pi/4)) + \frac{\cos(\pi/4)}{\pi/4} \right| * 0.005$$

$$\Delta f(\pi/4) = |1.26693| * 0.005$$

$$\Delta f(\pi/4) = 0.0063125$$

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

$$f(x) \in [\cos(\pi/4) * \ln(2\pi/4) - 0.0063125,$$

$$\cos(\pi/4) * \ln(2\pi/4) + 0.0063125]$$

$$f(x) \in [0.45154 - 0.0063125, 0.45154 + 0.0063125]$$

$$f(x) \in [0.445227, 0.457852]$$