

1.

$$\bullet \text{CAFE}_{16} \rightarrow \begin{array}{cccc} \text{C} & \text{A} & \text{F} & \text{E} \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 12 & 10 & 15 & 14 \end{array}$$

$$12 \times 16^3 + 10 \times 16^2 + 15 \times 16^1 + 14 \times 16^0 = 51966$$

$$\bullet 11101100_2 \rightarrow$$

$$1 \times 2^7 + 1 \times 2^6 + 1 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 0 \times 2^0 = 236$$

$$\bullet 541_5 \rightarrow$$

$$5 \times 5^2 + 4 \times 5^1 + 1 \times 5^0 = 146$$

$$\bullet \text{A513}_{12} \rightarrow \begin{array}{c} \text{A} \\ \downarrow \\ 10 \end{array}$$

$$10 \times 12^3 + 5 \times 12^2 + 1 \times 12^1 + 3 \times 12^0 = 18015$$

$$\bullet 10440_6 \rightarrow$$

$$1 \times 6^4 + 0 \times 6^3 + 4 \times 6^2 + 4 \times 6^1 + 0 \times 6^0 = 1464$$

## ***Ejercicio 2***

$$x = 2$$

$$x_{i+1} = 2,005$$

$$h = 0,005$$

$$f(x) = 1,2x^4 - 0,6x^3 + 2x + 1$$

$$f'(x) = 4,8x^3 - 1,8x^2 + 2$$

$$f''(x) = 14,4x^2 - 3,6x$$

$$f'''(x) = 28,8x - 3,6$$

### ***Orden 0***

$$f(2,005) \cong f(2) = 1,2(2)^4 - 0,6(2)^3 + 2(2) + 1 = 19,4$$

### ***Orden 1***

$$f(2,005) \cong 19,4 + f'(2) * 0,1 = 19,4 + (4,8(2)^3 - 1,8(2)^2 + 2) * 0,005 = 19,566$$

### ***Orden 2***

$$f(2,005) \cong 19,566 + \frac{f''(2)}{2!} * 0,1^2 = 19,566 + \frac{14,4(2)^2 - 3,6(2)}{2!} * 0,005^2 = 19,56663$$

### ***Orden 3***

$$f(2,005) \cong 19,56663 + \frac{f'''(2)}{3!} * 0,1^3 = 19,56663 + \frac{28,8(2) - 3,6}{3!} * 0,005^3 = 19,56663113$$

#### ***Ejercicio 4***

$$\tilde{x} = 4.25$$

$$\varepsilon_a = 0.117647\%$$

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

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

$$x \in [4.25 - 0.005, 4.25 + 0.005]$$

$$x \in [4.245, 4.255]$$

Tomo  $\tilde{x}$  y lo aplico a la función  $f(x) = 2 \ln(x^3 - 2x^2 - 3) + e^{-x}$

$$\Delta f(4.25) = \left| \frac{6(4.25)^2 - 8(4.25)}{(4.25)^3 - 2(4.25)^2 - 3} - \frac{1}{e^{(4.25)}} \right| * 0.005$$

$$\Delta f(4.25) = |1.961659386| * 0.005$$

$$\Delta f(4.25) = 0.0098082969$$

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

$$f(x) \in [2 \ln((4.25)^3 - 2(4.25)^2 - 3) + e^{-(4.25)} - 0.0098082969, \\$$

$$2 \ln((4.25)^3 - 2(4.25)^2 - 3) + e^{-(4.25)} + 0.0098082969]$$

$$f(x) \in [7.260623776, 7.280240369]$$