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Evaluación 2.

1)

a. 35 a base 2

$$\begin{array}{r|l} 35 & 2 \\ \hline 1 & 17 \\ \hline 1 & 8 \\ \hline 0 & 4 \\ \hline 0 & 2 \\ \hline 0 & 1 \end{array}$$

$35 = 100011$

b) 38 a base 6.

$$\begin{array}{r|l} 38 & 6 \\ \hline 2 & 6 \\ \hline 0 & 1 \end{array}$$

$38 = 102_6$

c) 491 a base 8

$$\begin{array}{r|l} 491 & 8 \\ \hline 11 & 61 \\ \hline 3 & 5 \end{array}$$

$491 = 753_8$

d) 720 a base 16

720 | 16
80 45 | 16
0 13 2

720 = 2D0

2) Convertir a base 10

76543210

a.) 10010101 = 149

$1 \times 2^0 = 1$

$1 \times 2^2 = 4$

$1 \times 2^4 = 16$

$1 \times 2^7 = 128$

b) 162_7 =

↓

Es un numero invalido para base 6.

c.) 407_8 = 263

$7 \times 8^0 = 7$

$4 \times 8^2 = 256$

d) $F5A_{16}$ = 3930_{10}

$10 \times 16^0 = 10$

$5 \times 16^1 = 80$

$15 \times 16^2 = 3840$

Scribe

3)

$X_i = 1,75$

$X_i + h = 1,751$

$h = 0,001$

$F(x) = 0,55x^4 - 2,25x^3 + 0,75x + 2$

$F'(x) = 2.2x^3 - 6.75x^2 + 0,75$

$F''(x) = 6.6x^2 - 13.5x$

$F'''(x) = 13.2x - 13.5$

Orden cero

$F(1,751) \cong 0,55(1,75)^4 - 2,25(1,75)^3 + 0,75(1,75) + 2$

$\cong -3.588$

Primer orden

$F(1,751) \cong -3.588 + (2,2(1,75)^3 - 6,75(1,75)^2 + 0,75)(0,001))$

$\cong -3.596$

Segundo orden

$F(1,751) \cong -3.596 + (6.6(1.75)^2 - 13.5(1,75))(0.001)^2$

$\cong -3.596$

Tercer orden

$F(1,751) \cong -3.596 + ((13.2(1.75) - 13.5)(0.001)^3)$

$\cong -3.595$

Valor real:

$f(1,751) = 0,55(1,751)^4 - 2.25(1.751)^3 + 0.75(1.751) + 2$

$f(1,751) = -3.595$

4)

$X = 1,2$

$h = 0,001$

	X	Y
$X_i - 2$	1.198	0,7079572
$X_i - 1$	1.199	0,7048909
X_i	1,2	0,701824
$X_i + 1$	1,201	0,6987565
$X_i + 2$	1,202	0,6956884

$f(x) = 0,2x^5 - 0,4x^4 - 0,3x^3 + 0,8x^2 - 3x + 4$

- Primera hacia adelante

$$f'(1,2) = \frac{0,6987 - 0,7018}{0,001} = -3.1$$

- Primera hacia atras.

$$f'(1,2) = \frac{0,7018 - 0,7048}{0,001} = -3$$

- Primera centrada.

$$f'(1,2) = \frac{0,6987 - 0,7048}{0,002} = -3.05$$

- Segunda hacia adelante.

$$F''(1,2) = \frac{0.6956884 - 2(0.6487565) + 0.701824}{0.001^2} = -0.6$$

- Segunda hacia atras.

$$F''(1,2) = \frac{0.701824 - 2(0.6487565) + 0.7079572}{0.001^2} = -0.6$$

- Segunda Centrada.

$$F''(1,2) = \frac{0.6487565 - 2(0.701824) + 0.7048909}{0.001^2} = -0.6$$

Derivadas reales

$$F(x) = x^4 - 1.6x^3 - 0.9x^2 + 1.6x - 3$$

$$F'(x) = 4x^3 - 4.8x^2 - 1.8x + 1.6$$

- $F'(1,2) = (1,2)^4 - 1.6(1,2)^3 - 0.9(1.2)^2 + 1.6(1,2) - 3$

$F'(1,2) = -3,0672$

- $F''(1,2) = 4(1.2)^3 - 4.8(1.2)^2 - 1.8(1.2) + 1.6$

$F''(1,2) = -0.56$