Taller 10

1)

$Xi = 1.1 = f(1,1) = 0.35(1.1)^4 - 0.45(1.1)^2 + 4.8$
$Xi+1 = 1.2 = f(1,2)$
$Xi+2 = 1.3 = f(1,3)$
$Xi-1 = 1 = f(1)$
$Xi-2 = 0,9 = f(0,9)$

$f(1,1) = 4.767935$

$f(1,2) = 4.827776$

$f(1,3) = 5.039133$

$f(1) = 4.7$

$f(0,9) = 4.665935$

$x = 1,1, h = 0,1$

$f'(1,1) = 0,8734$

$f''(1,1) = 4,187$

Delante

$$f(1,1) = \frac{f(4.827776) - f(4.767935}{0,1} = o(0,1) = 1.098825$$

$$f''(1,1) = \frac{(5.03913 - 9.75552 + 4.767935}{0,1^2} = 5,155$$

Atras

$$f(1,1) = \frac{(4.767935) - (4.7)}{0,1} = 0.67935$$

$$f''(1,1) = \frac{4.767935 - 1.4 + 4.665135}{0,1^2} = 3.307$$

Centrada

$$f(1,1) = \frac{(4.827776) - (4.7)}{2(0.1)} = 0.8888$$

$$f''(1,1) = \frac{(4.827776) - (9.535587) + (4.7)}{0.1^2} = 4.189$$

2)

$f(x) = 0,35x^4 - 0,95x^2 + 4,8$

$f(1,9) = 4,276735$ $\quad x = 1,1 \quad h = 0,05$

$f(1,15)^{xi+1} = 4.817027188$ $\quad f'(1,1) = 9,8734$

$f(1,05)^{xi-1} = 4,729302188$ $\quad f''(1,1) = 4,182$

$$f'(1,1) = \frac{4.817027188 - 4.729302188}{0,1} = 0.87725$$

$$f''(1,1) = \frac{4.817027188 - 7,53587 + 4.729302188}{0,05^2}$$

$= 4.18375504$

se llega a ser cercano el resultado al anterior