Chicho

$f(x) = 5x^3 - 5x^2 + 6x - 2 \quad [0, 1]$

$= (m-1)(m^2 - 4m + 2) = 0$

$x_1 = 1$ $\qquad x_3 = 0.585786$

$x_2 = 3.414213$

$x_l = 0 \quad x_u = 1$

$x_r = \frac{0+1}{2} = 0.5 \qquad f(x_l)\, f(x_u) = 0.75 < 0$

$\varepsilon_t = \frac{0.585786437626 - 0.5}{0.585786437626} \quad (100\%) = \pm 14.644\%$

$x_r = \frac{0+0.5}{2} = 0.375 \qquad f(x_l)\, f(x_u) = 0.0957 > 0$

$\varepsilon_t = \frac{0.585786437626 - 0.375}{0.585786437626} \quad (100\%) = 57.3\%$

$x_1 = \frac{0.25+0.5}{2} = 0.375 \qquad f(x_1)\, f(x_u) =$

$0.05 > 0$

$\varepsilon_t = \frac{0.585786437626 - 0.375}{0.585786437626} \quad (100\%) = 35.92\%$

$x_r = \frac{0.375+0.5}{2} = 0.4375 \qquad f(x_1)\, f(x_u) = -0.02 < 0$

$\varepsilon t = \frac{0.585786437\,6 - 0.4375}{0.585786} (100\%) = 25.32$

$x_r = \frac{0.375 + 0.4375}{2} = 0.40625$

$f(x_l)\, f(x_u) = -0.29 < 0$

$\varepsilon t = \frac{0.585786437\,6 - 0.40625}{0.585786437\,6} (100\%) =$

30.65%

3- Sea la función

$F(x) = \ln(x^2) = 0.7$

$\ln(x^2) - 0.7$

$X0 = 2 \qquad F(x1) = \ln(2)^2 - 0.7 = 0.68629$

$X1 = 0.5$

$Xr = 1.25 \qquad F(x0) = \ln(0.5)^2 - 0.7 = -2.08629$

$F(x1)F(x0) = (0.68629)(-2.08629) =$

-1.43179 //

$F(x1) = 0.68629$

$F(x0) = -2.08629$

$F(xr) = \frac{x1 + x0}{2} = \frac{2 + 0.5}{2} = 1.25$ //

$F(x1)F(xr) = (0.68629)(1.25) = 0.8578670$

$F(xr)F(x0) = (1.25)(-2.08629) = -2.6078625$

$F(xr)F(x0) < 0$

$F(x0) = 2$

$F(x1) = 1.25$

$F(xr) =$

$F(x) = \ln(2)^2 - 7$

$F(xr) = -0.6253 \quad F(x)' = -2.086$

$f(x_r) \cdot f(x_i) = (-0.253) \cdot (-2.086) = 0.522$

> 0

x_1

$x_1^2 = 1.25 \quad x_0^2 = 2$

$x_r = \frac{1.25 + 2}{2} = 1.625 \quad f(x_r) = 0.271 \quad f(x_1) = -0.253$

$f(x_r) f(x_1) = 0.271 (-0.253) = -0.0685 < 0$

$x_1^3 = 1.25 \quad x_0 = 1.625$

$x_r = \frac{1.25 + 1.625}{2} = 1.4375$

(1, 4)

Sea la función $X^{3.5} = 80$

Determine la raiz real bajo los siguientes casos

$X^{3.5} - 80 = 0$

$f(x_1) = 1$ $\quad f(x_1) = 1^{3.5} - 80 = -79$

$f(x_0) = 3$ $\quad f(x_0) = 3^{(3.5)} - 80 = -33.2346$

$f(x_0) f(x_1) = (-79)(-33.2346) = 2625.53$