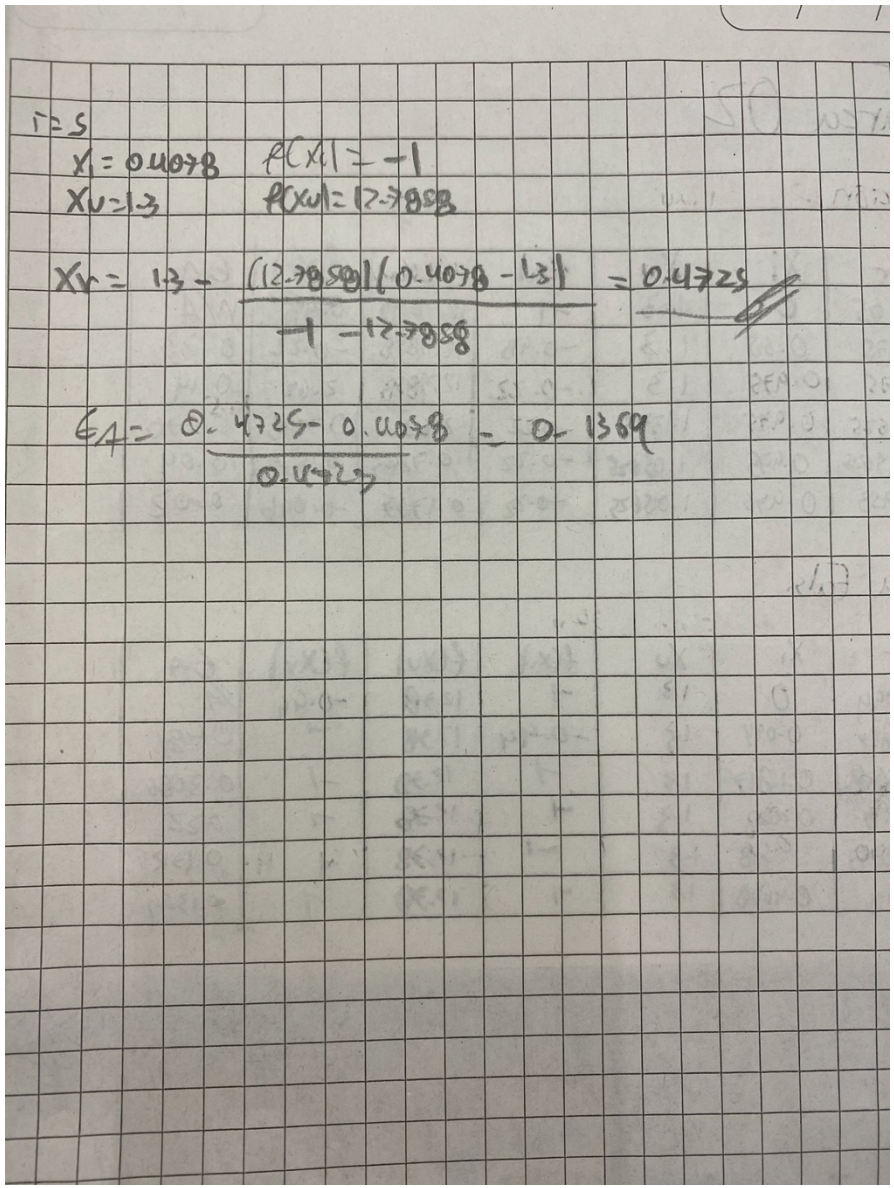
Tarea 02

Biseccion

i	Xr	Xl	Xu	f(xl)	f(xu)	f(xr)	EA
0	0.65	0	1.3	-1	12.7858	0.475	N/A
1	0.975	0.65	1.3	-0.98	12.7858	-0.22	0.33
2	1.1375	0.975	1.3	-0.22	12.7858	2.62	0.14
3	1.05625	0.975	1.1375	-0.22	2.62	0.7285	0.076
4	1.015625	0.975	1.05625	-0.22	0.7285	0.1779	0.04
5	0.9953	0.975	1.05625	-0.22	0.1779	-0.096	0.02

Regula Falsi

i	Xr	Xl	Xu	f(xl)	f(xu)	f(xr)	EA
0	0.094	0	1.3	-1	12.78	-0.44	N/A
1	0.1817	0.094	1.3	-0.44	12.78	-1	0.48
2	0.2628	0.1817	1.3	-1	12.78	-1	0.3086
3	0.338	0.2628	1.3	-1	12.78	-1	0.22
4	0.4078	0.338	1.3	-1	12.78	-1	0.1712
5	0.473	0.4078	1.3	-1	12.78	-1	0.1364



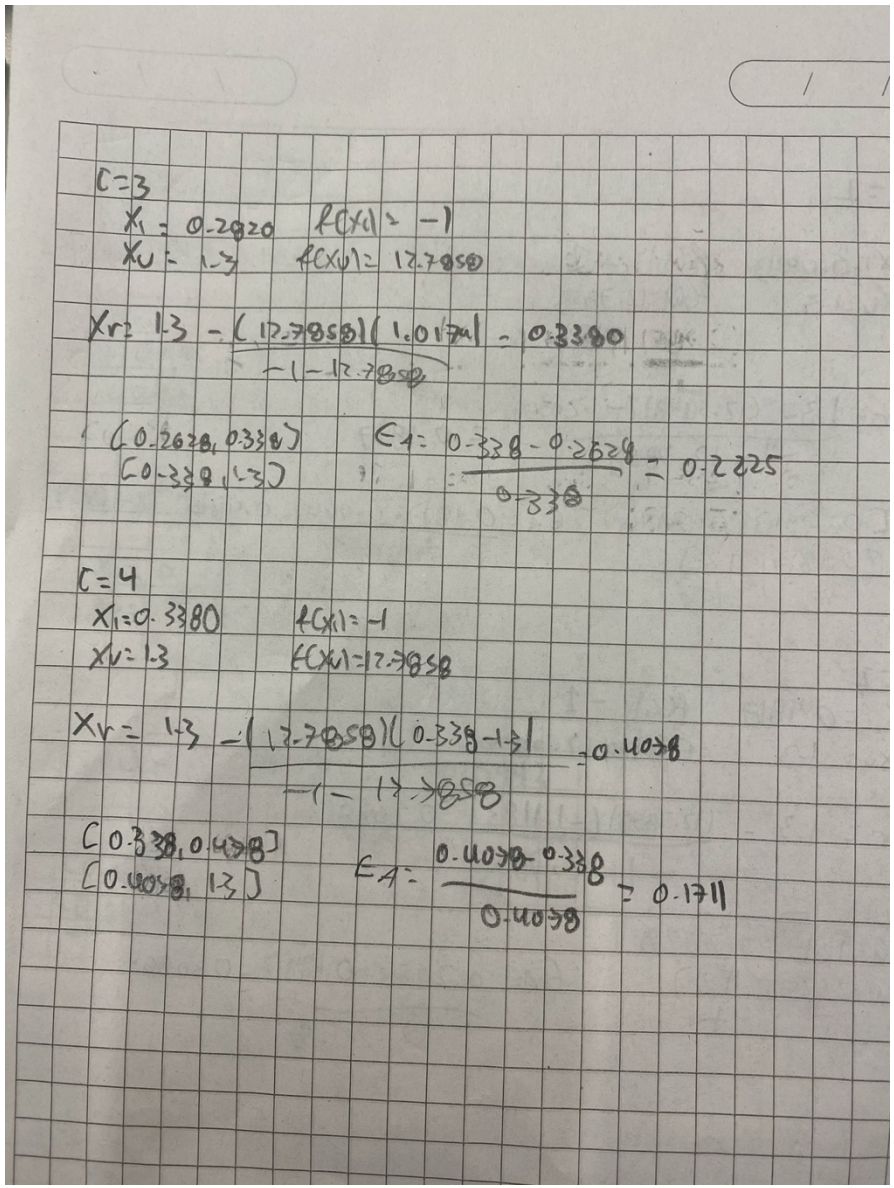
i=5

$X_l = 0.4078$ $f(X_l) = -1$

$X_u = 1.3$ $f(X_u) = 12.7858$

$$X_r = 1.3 - \frac{(12.7858)(0.4078 - 1.3)}{-1 - 12.7858} = 0.4725$$

$$\epsilon_4 = \frac{0.4725 - 0.4078}{0.4725} = 0.1369$$



C=3

$X_l = 0.2620$ $f(X_l) = -1$

$X_u = 1.3$ $f(X_u) = 12.7858$

$$X_{r2} = 1.3 - \frac{(12.7858)(1.0174)}{-1-12.7858} = 0.3380$$

$[0.2628, 0.338)$

$[0.338, 1.3]$

$$\epsilon_A = \frac{0.338 - 0.2628}{0.338} = 0.2225$$

C=4

$X_l = 0.3380$ $f(X_l) = -1$

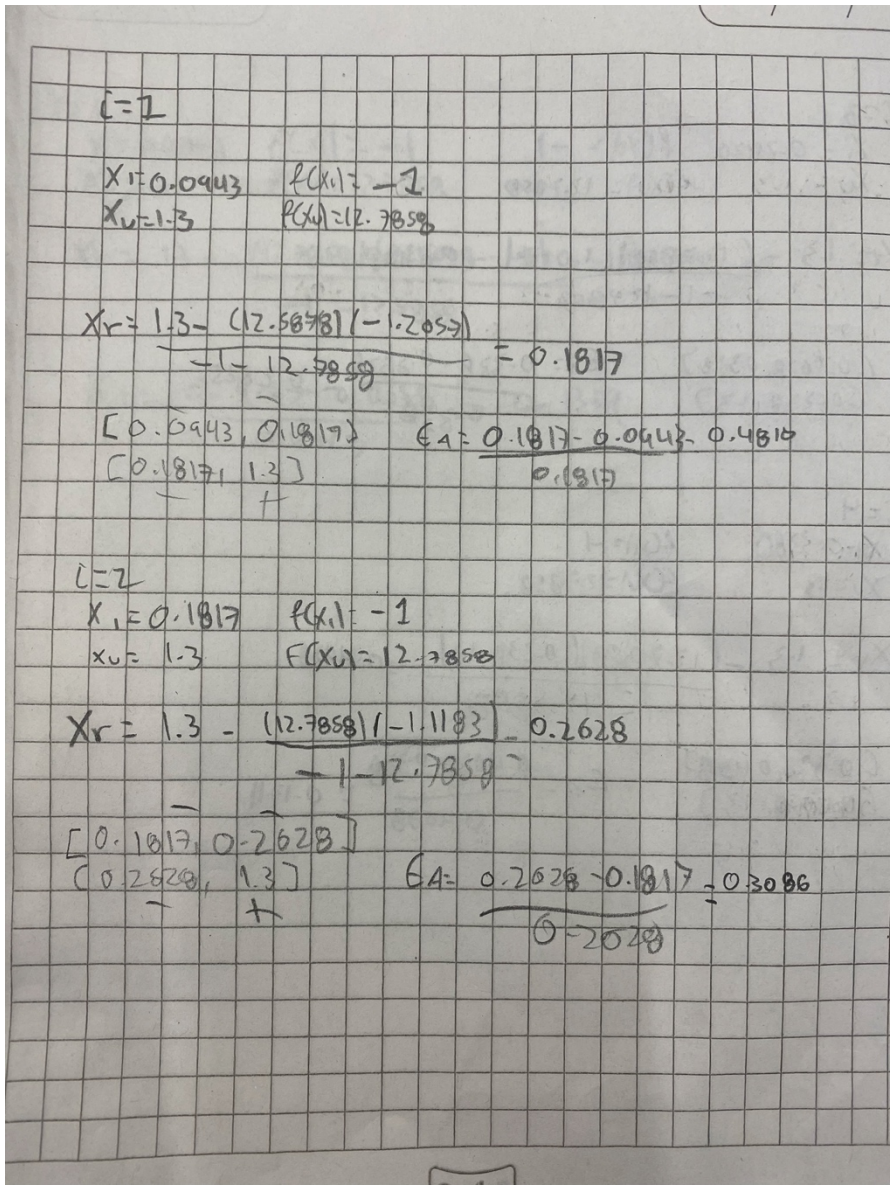
$X_u = 1.3$ $f(X_u) = 12.7858$

$$X_r = 1.3 - \frac{(12.7858)(0.338-1.3)}{-1-12.7858} = 0.4078$$

$[0.338, 0.4078]$

$[0.4078, 1.3]$

$$\epsilon_A = \frac{0.4078 - 0.338}{0.4078} = 0.1711$$



i=1

$X_l = 0.0943$ $f(X_l) = -1$

$X_u = 1.3$ $f(X_u) = 12.7858$

$$X_r = 1.3 - \frac{(12.7858)(-1.2057)}{-1-12.7858} = 0.1817$$

[0.0943, 0.1817) $\quad \epsilon_A = \frac{0.1817 - 0.0943}{0.1817} = 0.4816$

[0.1817, 1.3]

− +

i=2

$X_l = 0.1817$ $f(X_l) = -1$

$X_u = 1.3$ $f(X_u) = 12.7858$

$$X_r = 1.3 - \frac{(12.7858)(-1.1183)}{-1-12.7858} = 0.2628$$

[0.1817, 0.2628]

[0.2628, 1.3] $\quad \epsilon_A = \frac{0.2628 - 0.1817}{0.2628} = 0.3086$

− +

$i=5$

$$X_r = \frac{1.015625 + 0.975}{2} = 0.9953125$$

$[\bar{0.975}, \overset{+}{0.99}]$

$[0.99, 1.015]$ (+ +)

$$E_A = \frac{0.9953125 - 1.015625}{0.9953125} = 0.02$$

$f(x) = x^{10} - 1$

$X_l = 0$; $f(x_l) = -1$

$X_u = 1.3$; $f(x_u) = 12.7858$

$i=0$

$$X_r = 1.3 - \frac{(12.7858)(-1.3)}{-1 - 12.7858} = 0.0943$$

$(\bar{0}, \bar{0.0943})$ $X_l =$

$(\underset{-}{0.0943}, \underset{+}{1.3})$

Tarea 02: Biseccion y Regula Falsi

$f(x) = x^{10} - 1 \quad x \in [0, 1.3]$

$f(0) = -1$

$f(1.3) = 12.7858$

i = 0

$x_r = \frac{1.3 + 0}{2} = 0.65$

$[0, 0.65]$ $x_l = 0.65$

$[0.65, 1.3]$ $x_u = 1.3$

i = 1

$x_r = \frac{(1.3 + 0.65)}{2} = 0.975$

$[0.65, 0.975]$ $X_l = 0.975$

$[0.975, 1.3]$ $X_u = 1.3$

$\epsilon_a = \frac{0.975 - 0.65}{0.975} = 0.333$

i = 2

$X_r = \frac{(1.3 + 0.975)}{2} = 1.1375$

$[0.975, 1.1375]$ $X_l = 0.975$

$[1.1375, 1.3]$ $X_u = 1.1375$

$\epsilon_a = \frac{1.1375 - 0.975}{1.1375} = 0.$

i = 3

$X_r = \frac{1.1375 + 0.975}{2} = 1.05625$

$[0.975, 1.05625]$ $X_l = 0.975$

$[1.05625, 1.1375]$ $X_u = 1.05625$

$\epsilon_a = \frac{1.05625 - 1.1375}{1.05625} = 0.0769$

i = 4

$X_r = \frac{1.05625 + 0.975}{2} = 1.015625$

$[0.975, 1.015]$ $X_l = 0.975$

$[1.015, 1.05625]$ $X_u = 1.015$

$\epsilon_a = \frac{1.015625 - 1.05625}{1.015625} = 0.04$

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