Se define la funcion f[x] con sus intervalos iniciales

$$f[x\_] := x^3 + 4x^2 - 10;$$

$$a_0 = 1;$$

$$b_0 = 2;$$

Calculamos el x0 para empezara a iterar con nuestro error relativo y absoluto

$$x_0 = N\left[\frac{a_0 + b_0}{2}\right]$$

1.5

$$N[f[x_0]]$$

2.375

$$E_0 = N[Abs[x_0]]$$

1.5

$$e_0 = N\left[\frac{Abs[x_0]}{x_0}\right]$$

1.

$$g_0 = N\left[\frac{1}{2}\right]$$

0.5

$n = 2$

$f[a_1]\ f[x_1]$

8.98438

$a_2 = x_1$

1.25

$b_2 = b_1$

1.5

$x_2 = N\left[\frac{a_2 + b_2}{2}\right]$

1.375

$f\left[x_2\right]$

0.162109

$E_2 = N[Abs[x_2 - x_1]]$

0.125

$e_2 = N\left[\frac{Abs[x_2 - x_1]}{Abs[x_2]}\right]$

0.0909091

$g_2 = N\left[\frac{1}{2^3}\right]$

0.125

$n = 3$

$f[a_2]\ f[x_2]$

-0.29129

$a_3 = a_2$

1.25

$b_3 = x_2$

1.375

$x_3 = N\left[\frac{a_3 + b_3}{2}\right]$

1.3125

$f\left[x_3\right]$

-0.848389

$E_3 = N[Abs[x_3 - x_2]]$

0.0625

$e_3 = N\left[\frac{Abs[x_3 - x_2]}{Abs[x_3]}\right]$

0.047619

$g_3 = N\left[\frac{1}{2^4}\right]$

0.0625

Asi seguimos iterando hasta encontrar el error deseado como se muestra en la tabla

```
m = Table[{n, a_n, b_n, x_n, f[x_n], E_n, e_n, g_n, Abs[x_n - r], TrueQ[Abs[f[x_n]] < 10^-4], TrueQ[E_n < 10^-4], TrueQ[e_n < 10^-4]}, {n, 0, 14}];

Insert[Grid[Prepend[m, {"n", "a_n", "b_n", "x_n", "f[x_n]", "E_n", "e_n", "g_n", "Abs[x_n-r]", "Test f[x_n]<10^-4", "Test E_n<10^-4", "e_n<10^-4"}], Frame → All],
 Alignment → Left, 2]
```

n	a_n	b_n	x_n	$f[x_n]$	E_n	e_n	g_n	$Abs[x_n-r]$	Test $f[x_n]<10^{-4}$	Test $E_n<10^{-4}$	$e_n<10^{-4}$
0	1	2	1.5	2.375	1.5	1.	0.5	0.13477	False	False	False
1	1	1.5	1.25	-1.79688	0.25	0.2	0.25	0.11523	False	False	False
2	1.25	1.5	1.375	0.162109	0.125	0.0909091	0.125	0.00976999	False	False	False
3	1.25	1.375	1.3125	-0.848389	0.0625	0.047619	0.0625	0.05273	False	False	False
4	1.3125	1.375	1.34375	-0.350983	0.03125	0.0232558	0.03125	0.02148	False	False	False
5	1.34375	1.375	1.35938	-0.0964088	0.015625	0.0114943	0.015625	0.00585501	False	False	False
6	1.35938	1.375	1.36719	0.0323558	0.0078125	0.00571429	0.0078125	0.00195749	False	False	False
7	1.35938	1.36719	1.36328	-0.03215	0.00390625	0.00286533	0.00390625	0.00194876	False	False	False
8	1.36328	1.36719	1.36523	0.0000720248	0.00195313	0.00143062	0.00195313	4.36159×10^{-6}	True	False	False
9	1.36328	1.36523	1.36426	-0.0160467	0.000976563	0.00071582	0.000976563	0.000972201	False	False	False
10	1.36426	1.36523	1.36475	-0.00798926	0.000488281	0.000357782	0.000488281	0.00048392	False	False	False
11	1.36475	1.36523	1.36499	-0.0039591	0.000244141	0.000178859	0.000244141	0.000239779	False	False	False
12	1.36499	1.36523	1.36511	-0.00194366	0.00012207	0.0000894214	0.00012207	0.000117709	False	False	True
13	1.36511	1.36523	1.36517	-0.000935847	0.0000610352	0.0000447087	0.0000610352	0.0000566736	False	True	True
14	1.36517	1.36523	1.3652	-0.000431919	0.0000305176	0.0000223539	0.0000305176	0.000026156	False	True	True