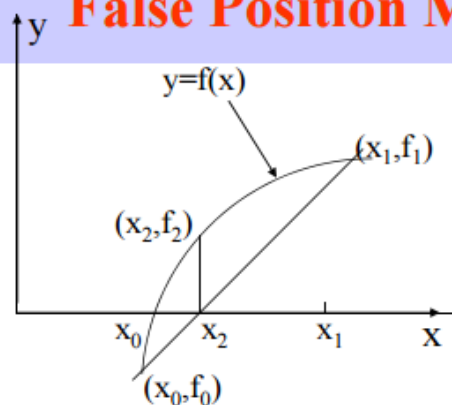


False Position Method (Regula Falsi)

Instead of bisecting the interval $[x_0, x_1]$, we choose the point where the straight line through the end points meet the x-axis as x_2 and bracket the root with $[x_0, x_2]$ or $[x_2, x_1]$ depending on the sign of $f(x_2)$.

False Position Method



Straight line through (x_0, f_0) , (x_1, f_1) :

$$y = f_1 + \frac{f_1 - f_0}{x_1 - x_0}(x - x_1)$$

New end point x_2 :

$$x_2 = x_1 - \left(\frac{x_1 - x_0}{f_1 - f_0} \right) f_1$$

Solve the equation

$$\sin x = 0$$

using the initial interval $a = 2$ and $b = 4$.

n	a_n	b_n	c_n	$ f(c_n) $
0	2.000000	4.000000	3.091528	5.004366e-02
1	3.091528	4.000000	3.147875	6.282262e-03
2	3.091528	3.147875	3.141590	2.295634e-06
3	3.141590	3.147875	3.141593	1.509491e-11
4	3.141590	3.141593	3.141593	1.224647e-16
5	3.141593	3.141593	3.141593	1.224647e-16

Experimentally, 3 iterations are required to compute π with 6 significant digits.