4 a) Hallar una aproximación $\sqrt{3}$ con una tolerancia 10^{-4} usando el algoritmo bisección

Escriba las primeras 5 iteraciones del método

Sea $a_0 = 1$ y $b_0 = 2$ $\quad f(a) = 1^2 - 3 = -2$ $\Rightarrow$ $a_1 = m = 1.5^2$

$\Rightarrow m = 1 + \frac{2-1}{2} = 1.5$ $\quad f(m) = (1.5)^2 - 3 = -0.75$ $\Rightarrow$ $b_1 = 2$

$\Rightarrow m = 1.5 + \frac{2-1.5}{2} = 1.75$ $\Rightarrow f(a_1) = (1.5)^2 - 3 = -0.75$ $\Rightarrow$ $b_2 = m = 1.75$

$f(m_1) = (1.75)^2 - 3 = 0.0625$ $\quad a_2 = 1.5$

$\Rightarrow m = 1.5 + \frac{1.75 - 1.5}{2} = 1.625$ $\quad f(m) = (1.625)^2 - 3 = -0.359375$ $\Rightarrow$ $m = a_3 = 1.625$

$\Rightarrow f(a_2) = -0.75$ $\quad b = 1.75$

$\Rightarrow m = 1.625 + \frac{1.75 - 1.625}{2} = 1.6875$ $\Rightarrow f(m) = (1.6875)^2 - 3 = -0.15234375$

$f(a_3) = -0.359375$

$\Rightarrow$ $m = a = 1.6875$

$b = 1.75$

$\Rightarrow m = 1.6875 + \frac{1.75 - 1.6875}{2} = 1.71875$

$f(a) = (1.6875)^2 - 3 = -0.15234375$

$f(m) = (1.71875)^2 - 3 = -0.045898475$