

Bisection method is a bracketing method, the simplest and most intuitive one in fact. We modify a function by subtracting a constant eg. if $y=f(x)$ and we wish to find when $y=5$, we have a new function $g(x)$ where $g(x) = f(x) - 5$

This guarantees that $g(x)$ will cross the x axis at $g(x)=0$, the point we're interested in so we can determine which x value will give $f(x) = 5$ or $g(x) = 0$

The procedure is as follows:

Assuming a continuous function, graph and approximate the root and choose two bounds around it, some x_l and some x_u

Estimate the root to be $x'_r = (x_l + x_u)/2$

-If is 0, that's the root, you're done

-If it's the opposite sign as x_l , ($x_l \times x'_r < 0$) then make it the new x_u and continue (alt: make it the new x_l if they are the same sign, positive product)

-If it's the opposite sign as x_u , ($x_u \times x'_r < 0$) then make it the new x_l and continue (alt: make it the new x_u if they are the same sign, positive product)

