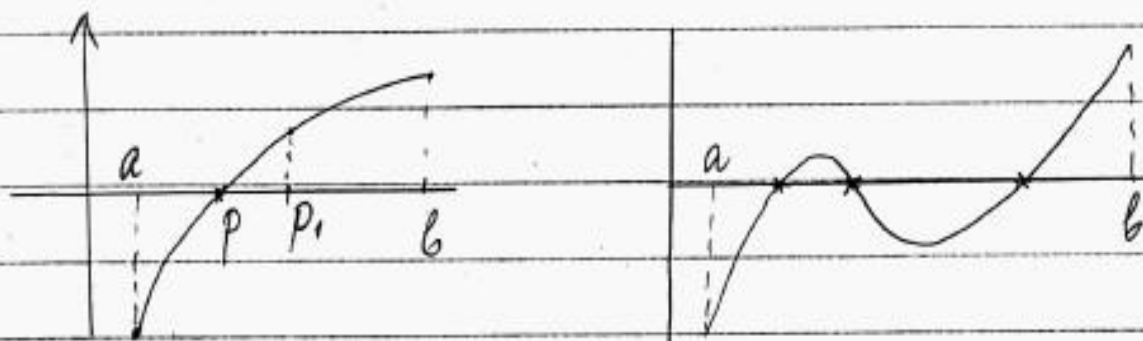


Under these conditions there is at least root in the interval (a, b)



The method consists in dividing the interval in half and taking the half that contains the root.

Set $a_1 = a$, $b_1 = b$. Let p_1 - midpt of $[a_1, b_1]$

$$p_1 = \frac{a_1 + b_1}{2}$$

If $f(p_1) = 0$ then $p = p_1$ and we are done.

If $\text{sign } f(a_1) = \text{sign } f(p_1)$ then $p \in (p_1, b_1)$ and we set $a_2 = p_1$, $b_2 = b_1$ and $\text{sign } f(a_2) \neq \text{sign } f(b_2)$.

If $\text{sign } f(b_1) = \text{sign } f(p_1)$ then $p \in (a_1, p_1)$ and we set $a_2 = a_1$, $b_2 = p_1$

Then we repeat the process for $[a_2, b_2]$