Nonlinear equations

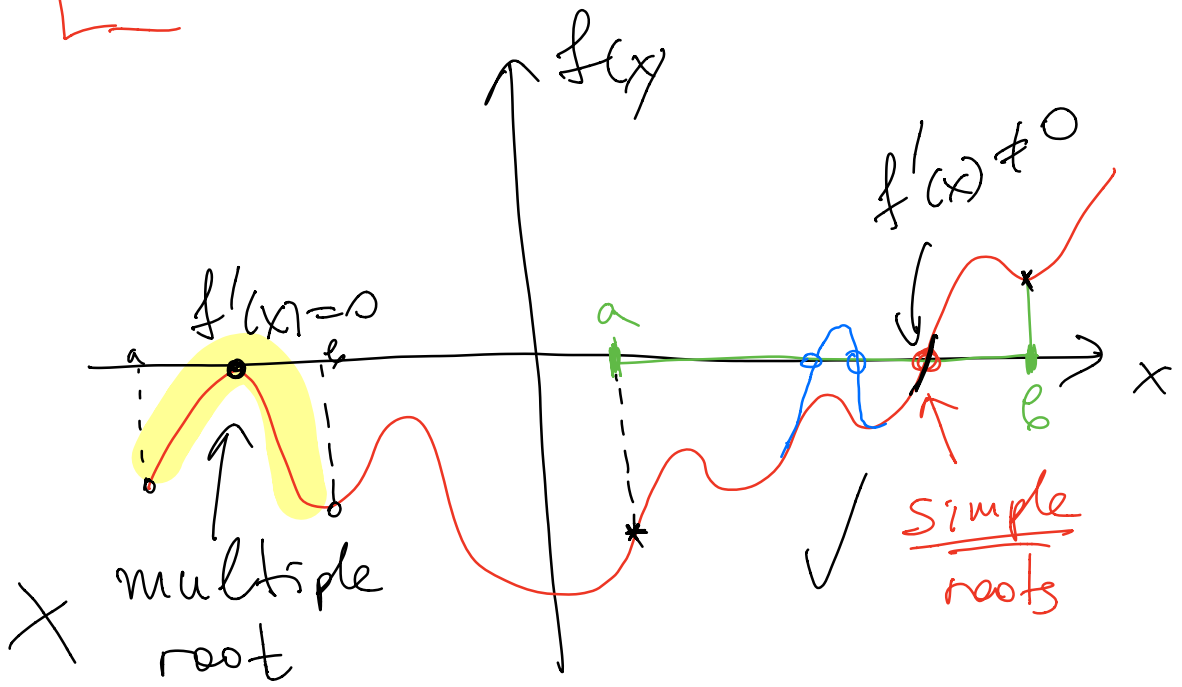
(in one variable)

$$x = \sqrt{c} \iff x^2 - c = 0$$

$$\cos x + x^2 - 7 = 0$$

Solve $f(x) = 0$ $x \in [a, b]$

Find at least one solution if one exists



$f(x)$ is continuous on $[a,b)$

If $f(a) \cdot f(b) < 0$

$\Rightarrow \exists\, x \in [a,b)$ s.t. $f(x) = 0$

(Q) Why don't I write $f(a)\, f(b) \leq 0$?