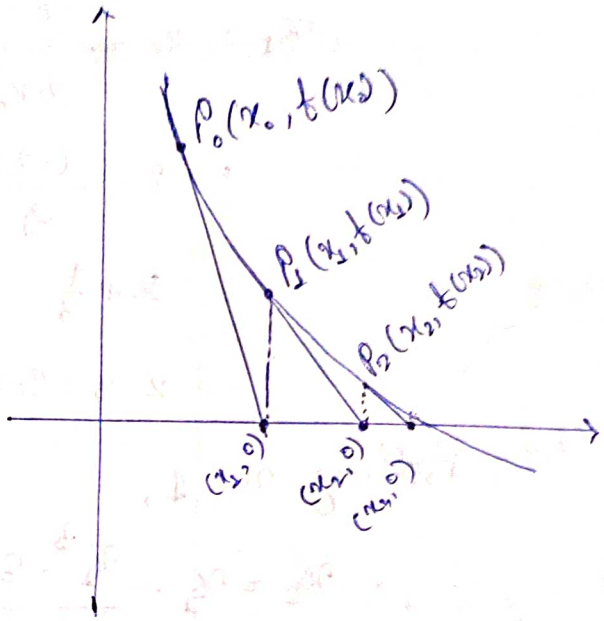
GP

Newton Raphson Method :



Eqⁿ of Tangent,

$$y - f(x_0) = f'(x_0)(x - x_0)$$

This is satisfied at $(x_1, 0)$ so,

$$0 - f(x_0) = f'(x_0)(x_1 - x_0)$$

$$\Rightarrow x_1 - x_0 = \frac{-f(x_0)}{f'(x_0)}$$

$$\therefore \boxed{x_1 = x_0 - \frac{f(x_0)}{f'(x_0)}}$$

Thus the formula is,

$$\boxed{x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}}, \quad f'(x_n) \neq 0$$