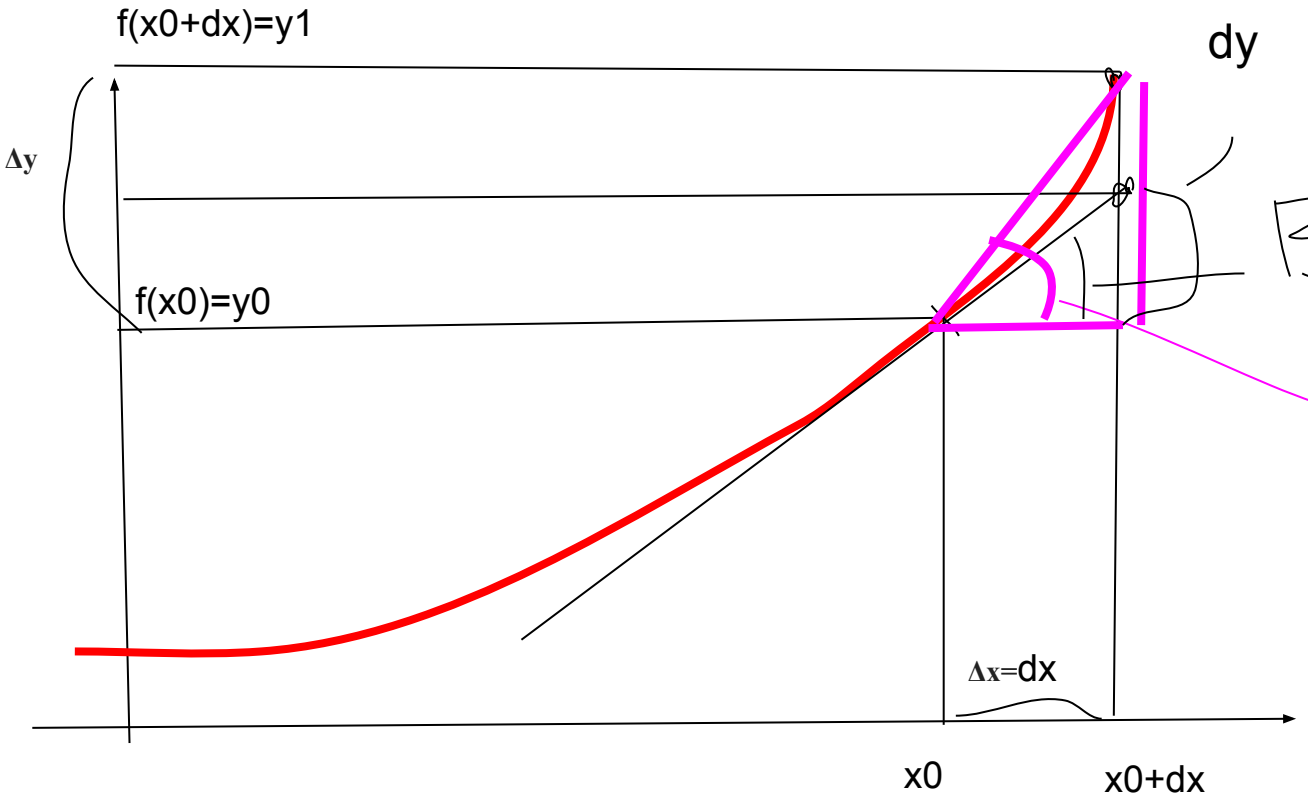

$\Delta y = f(x0+dx) - f(x0)$

$dx = x0+dx - x0 = dx$

$tgA = \Delta y / dx$

$tgB = dy/dx$
$dy = tgB*dx =$
$= tgA*dx =$
$= f'(x0)dx$

dx -> 0 tgA -> tgB

[f(x0+dx)-f(x0)]/dx -> ?
dx->0

y=x^2

f(x0)=x0^2
f(x0+dx)=(x0+dx)^2

f'(x0)=lim{dx->0}[f(x0+dx)-f(x0)]/dx = [(x0+dx)^2 - x0^2] / dx = dx[2x0+dx]/dx =2x0+dx = [dx->0]=2x0=tgA

f'(x)=(x^2)' = 2x