

8.7 Differential

Functions: f, u, v

Independent variable: x

Derivative of a function: $y'(x), f'(x)$

Real constant: C

Differential of function $y = f(x)$: dy

Differential of x : dx

Small change in x : Δx

Small change in y : Δy

838. $dy = y' dx$

839. $f(x + \Delta x) = f(x) + f'(x)\Delta x$

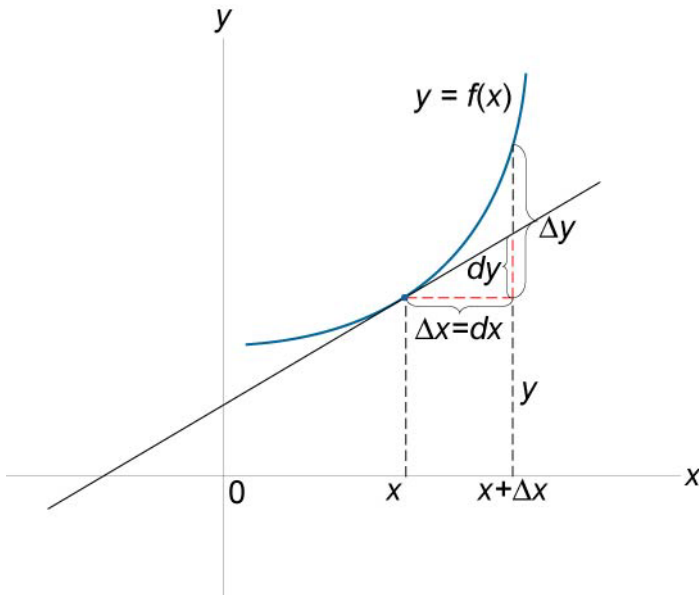


Figure 178.

840. Small Change in y
 $\Delta y = f(x + \Delta x) - f(x)$

841. $d(u + v) = du + dv$

842. $d(u - v) = du - dv$

843. $d(Cu) = Cdu$

844. $d(uv) = vdu + udv$

845. $d\left(\frac{u}{v}\right) = \frac{vdu - udv}{v^2}$

