

Mathematical Tools.

→ Differentiation

$$1*. \quad \frac{d}{dx} (x^n) = nx^{n-1}$$

Example:-

$$i) \quad \frac{d}{dx} (x)^6 = 6x^{6-1} = 6x^5$$

$$ii) \quad \frac{d}{dy} (y)^2 = 2y^{2-1} = 2y^1 = 2y$$

$$iii) \quad \frac{d}{dt} (t)^{-4} = -4t^{-4-1} = -4t^{-5} \Rightarrow -\frac{4}{t^5}$$

$$iv) \quad \frac{d}{dm} (4m^3)$$

$$4 \left[\frac{d}{dm} (m^3) \right]$$

$$4 (3m^{3-1}) = 12m^2$$